KU LEUVEN

Faculty of Humanities
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Educational Sciences

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THE ROLE OF PSYCHOLOGICAL CLIMATE IN SHAPING SUBJECTIVE JOB INSECURITY, PERCEIVED EMPLOYABILITY AND THEIR EFFECTS ON EMPLOYEES' WELL-BEING

INTERNATIONAL DUAL DOCTORATE

Zagreb, 2018

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ULOGA PSIHOLOŠKE KLIME U OBJAŠNJAVANJU SUBJEKTIVNE NESIGURNOSTI POSLA I ZAPOŠLJIVOSTI I NJIHOVIH UČINAKA NA DOBROBIT ZAPOSLENIKA

MEĐUNARODNI DVOJNI DOKTORAT ZNANOSTI

Mentori:

Prof. dr. sc. Darja Maslić Seršić i Prof. dr. sc. Hans De Witte

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ABOUT SUPERVISORS

Darja Maslić Seršić is Full Professor of Psychology at the Department of Psychology, Faculty of Humanities and Social Studies, University of Zagreb, Croatia. She is teaching courses in Research Methods, Organizational and Occupational Health Psychology. Her research interests are in the area of W/O Psychology, with an emphasis on work stress, coping with job loss, dispositional employability and health consequences of unemployment.

She received BA (1989), MA (1993) and PhD (2000) degrees in Psychology from the Faculty of Humanities and Social Sciences, University of Zagreb, Croatia where she has been working from 1990. She was elected at the position of assistant professor in 2001, associate professor in 2007, and full professor in the area of W/O Psychology in 2012. 2016 - present, she is the head of Doctoral Program in Psychology at the Faculty of Humanities and Social Sciences, University of Zagreb.

Professor Maslić Seršić is an internationally recognized author and her work contributed to the knowledge on individual resources that predict adaptive career behavior in the changing labor context. She published several highly cited papers, wrote one and edited two books, led several national and international research projects. She spent academic year 2011/2012 as a Fulbright Visiting Scholar at the Colorado State University, U.S.

Her research activities are in the area of Work and Organizational Psychology and focus on work motivation and the impacts of work on individual well-being. Concepts of her special interests are: organizational climate, occupational stress, job insecurity and unemployment. She investigates consequences of prolonged unemployment on individual health, individual strategies of coping with job loss, and individual and contextual predictors of individual career success in the social context of intensified job insecurity and fast changes on labor market.

She is a member of the professional associations Croatian Psychological Association (Division of W/O Psychology), Croatian Psychological Chamber, European Association of Work and Organizational Psychology and European Network of Organizational Psychologists.

Professor Maslić Seršić is professionally active in Croatian society, participating in government and civil sector projects aiming to enhance quality of work and work-related well-being of people of various demographic characteristics and employment backgrounds.

Her professional challenges include protecting and enhancing work motivation and employability of various groups of professionals and workers through organizational interventions – cooperative organizational culture, transformational leadership, job enrichment and work autonomy.

She initiated and leads Center of Career Development at the Faculty of Humanities and Social Science, University of Zagreb.

Hans De Witte is Full Professor in Work Psychology at the Faculty of Psychology and Educational Sciences of the KU Leuven, Belgium, where he is member of the Research Group Work, Organizational and Personnel Psychology (WOPP), part of the larger Research *Unit* Occupational & Organisational Psychology and Professional Learning (O2L). He is also appointed as Extraordinary Professor at the North-West University of South Africa (Optentia Research Focus Area, Vanderbijlpark Campus). He is teaching courses in Work Psychology, Occupational Health Psychology and Interventions in Organizations. His research includes the study of the psychological consequences of job insecurity, unemployment, temporary employment and downsizing, as well as mobbing and job stress (e.g. burnout) versus well-being at work (e.g. work engagement).

He received BA (1980), MA (1982) and PhD (1991) degrees in Psychology from the Faculty of Psychology and Educational Sciences of the KU Leuven, Belgium where he has been working since 1984. He first of all worked at the Higher Institute of Labour Studies of the KU Leuven, where he became Project Leader in 1993 and Head of the Labour Sector in 1994. He started as Assistant Professor in 2000, Associate Professor in 2004, professor (first level of Full Professor) in 2007 and Full Professor in 2011. He is Coordinator of the Doctoral Program in Psychology at his Faculty, and elected member of both the 'Appraisal Commission' (in charge of the selection and promotion of professors) and the 'Evaluation Committee' (in charge of the yearly evaluation of all professors of the Faculty).

Prof. Hans De Witte is (or has been) involved in (national and European) research regarding job insecurity, temporary contracts, restructuring of plants, mergers of banks, unemployment, mobbing at work and well-being at work. On the 1st of January 2018, he (co-) authored 189 articles in (English) international, peer-reviewed journals, and 68 in Dutch scientific peer reviewed journals. He published 28 books (12 English and 16 in Dutch; most as co-editor) and is (co-)author of 66 chapters in English academic books and 49 chapters in Dutch scientific books. Additionally, he (co-)authored 99 articles in policy and practice oriented journals. The sum of times cited (Google Scholar, August 2018) was 17.914 and his h-index was 64 (i10-index = 220). In the past, he supervised 14 finished and co-supervised 7 finished PhDs. At the moment, he is the supervisor of 7 ongoing PhDs and co-supervisor of 3 ongoing PhDs. He is involved in (national and European) research regarding the topics mentioned above. At the European level, he was involved in three projects funded by DG XII (5th framework): SOCOSE, SIREN and PSYCONES. At the national level, he is/was involved in more than 20 large scale scientific studies, most of them leading to PhDs.

Internationally, he is Invited member of the ‘European Network of Work & Organizational Psychologists’ (ENOP), which meets on a yearly basis to discuss research and policy in Europe related to W/O Psychology, and Member of the executive board of the Scientific Committee Unemployment, Job Insecurity & Health of ICOH.

Thank you – Hvala – Dank u

Before you continue to the following pages, I would like to draw your attention to the following lines which I am writing out of immeasurable gratitude to all the people who have exerted their unique contribution to my PhD journey. These people represent one of the key reasons for why now, at the end of this journey, I can look back on it feeling satisfied and proud. This final result would not be possible without:

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SUMMARY

The present PhD places the focus on job insecurity (JI) and perceived employability (PE) – two constructs that represent central determinants of employees' well-being in the context of the contemporary labor markets. Despite their well-established relevance, the question on how both can be managed to good effect still represents a challenge for researchers and practitioners. In response, this PhD aimed to investigate whether and how does a comprehensive set of work environmental variables: (i) directly affect JI and PE and/or (ii) moderate the effects of JI and PE on employees' well-being. In pursuing these aims, we utilized the psychological climate (PC) model that encompasses four dimensions – job challenge, role harmony, leader support and co-worker cooperation. Departing from the Conservation of Resources (COR) theory, we hypothesized that occupational self-efficacy (partially) accounts for the direct effects of the PC dimensions on JI and PE, as well as that perceived control (partially) mediates the moderating effects of the PC dimensions on the effects from JI and PE to employees' well-being.

To test the hypothesized research model, we conducted a 3-wave cross-lagged panel study. Data was collected among Croatian white-collar employees who worked in 29 private sector organizations. Employees completed on-line questionnaire three times spaced approximately six months apart (N_1 = 2133; N_2 = 1847; N_3 = 1571; N_{1+2+3} = 576). The hypothesized mediation and mediated moderation models were tested via cross-lagged structural equation modelling. The results demonstrated that co-worker cooperation reduces JI across a 1-year time lag. In contrast, the remaining PC dimensions did not affect JI and internal/external PE (neither directly, nor indirectly via occupational self-efficacy). Additionally, the results did not support the idea that the PC dimensions moderate the cross-lagged effects from JI and internal/external PE to employees' well-being (neither directly, nor indirectly via perceived control). However, we found that role harmony and leader support, as well as co-worker cooperation amplified the positive cross-lagged effect from internal PE to perceived control.

In all, the results of this PhD demonstrate limited utility of work environmental variables in managing JI and internal/external PE. However, they do reveal that investments in co-operative relationships can be beneficial for reducing perceptions of JI, as well as that promoting supportive leadership and co-worker cooperation can help internally employable individuals to more easily establish control over their work situation.

SAŽETAK

Uvod

U suvremeno doba brojni zaposlenici suočavaju se s raznim izazovima koji proizlaze iz promjenjivog i nepredvidljivog globalnog tržišta, ubrzanih tehnoloških promjena, tržišnog natjecanja i ekonomske recesije. Jedan od najvažnijih stresora u takvom kontekstu odnosi se na doživljaj nesigurnosti posla, odnosno percipiranu prijetnju neželjenog gubitka trenutnog zaposlenja. Brojna istraživanja potvrdila su da nesigurnost posla ima negativne posljedice na široki raspon individualnih i organizacijskih ishoda (npr. zadovoljstvo poslom, mentalno zdravlje, namjeru napuštanja organizacije). Kao jedan od odgovora na opisano stanje, istraživači su se usmjerili na identificiranje resursa zaposlenika koji povećavaju mogućnost zadržavanja kontinuiranog zaposlenja i pospješuju razvoj karijere. Jedan od najistaknutijih u tom pogledu odnosi se na percipiranu zapošljivost, odnosno subjektivnu procjenu vlastite mogućnosti zapošljavanja na internalnom (tzv. internalna percipirana zapošljivost) ili na eksternalnom tržištu rada (tzv. eksternalna percipirana zapošljivost). U suvremenom kontekstu rada percipirana zapošljivost prepoznata je kao jedan od ključnih individualnih resursa koji promiče doživljaj kontrole nad karijerom, a time i opću i radnu dobrobit zaposlenika (npr. radnu angažiranost i mentalno zdravlje). Iz navedenog slijedi da je ublažavanje doživljaja nesigurnosti posla i pratećih negativnih posljedica, odnosno povećanje percepcije zapošljivosti i njezinih pozitivnih posljedica u interesu kako zaposlenika, tako i organizacija. Unatoč tome, spoznaje o antecedentima nesigurnosti posla i percipirane internalne/eksternalne zapošljivosti te moderatorima povezanosti ovih konstrukata s relevantnim kriterijima još su uvijek malobrojne.

S obzirom na navedeno, ciljevi ovog istraživanja bili su: (i) ispitati utječu li varijable iz domene radne okoline na subjektivnu percepciju nesigurnosti posla i zapošljivosti; (ii) ispitati moderiraju li varijable iz domene radne okoline utjecaj nesigurnosti posla i percipirane internalne/eksternalne zapošljivosti na opću dobrobit zaposlenika te (iii) utvrditi mehanizme u podlozi navedenih izravnih i moderatorskih efekata. Kako bismo odgovorili na prva dva istraživačka cilja, odabrali smo sveobuhvatan i teorijski utemeljen model psihološke klime koji obuhvaća četiri perceptivno najistaknutije i psihološki značajne dimenzije radne okoline: (1) izazovnost radnih zadataka, (2) harmoniju radne uloge, (3) podršku nadređene osobe te (4) suradnju u radu među kolegama. Nadalje, na treći istraživački cilj odgovorili smo uvođenjem: (1) profesionalne samoefikasnosti kao potencijalnog medijatora izravnih učinaka dimenzija

psihološke klime na nesigurnost posla i percipiranu internalnu/eksternalnu zapošljivost te (2) percipirane kontrole kao potencijalnog medijatora moderatorskih utjecaja dimenzija psihološke na učinke nesigurnosti posla te percipirane internalne/eksternalne zapošljivosti na opću dobrobit zaposlenika (zadovoljstvo životom i mentalno zdravlje). Profesionalna samoefikasnost odnosi se na uvjerenje pojedinca u vlastite sposobnosti uspješnog ovladavanja različitim radnim izazovima. Nasuprot tome, percipirana kontrola podrazumijeva doživljaj kontrole nad trenutnom radnom situacijom. Istraživačke hipoteze utemeljene su na pretpostavkama Teorije očuvanja resursa (Hobfoll, 2001).

Metoda

Kako bismo odgovorili na postavljene hipoteze, provedeno je longitudinalno istraživanje u tri vala prikupljanja podataka s vremenskim razmakom od šest mjeseci: prvi val proveden je od svibnja do srpnja 2016. godine; drugi od studenog 2016. do siječnja 2017. godine te treći od svibnja do srpnja 2017. godine. Podaci su prikupljeni u 29 organizacija iz poslovnog sektora. Uzorak istraživanja čine profesionalni zaposlenici (eng. *white-collars*) heterogenih demografskih i radnih karakteristika (N_1 = 2133; N_2 = 1847; N_3 = 1571; N_{1+2+3} = 576). Prikupljanje podataka proveli smo u suradnji s voditeljima ljudskih potencijala koji su zaposlenicima objasnili važnost sudjelovanja za sve uključene dionike (npr. davanje anonimnih povratnih informacija organizaciji o radnoj okolini koje će se koristiti u svrhu njenog poboljšanja). Svaki zaposlenik je preko poslovne e-pošte primio poveznicu na elektronski upitnik. Sudionicima je naglašeno da je istraživanje u potpunosti dobrovoljno i anonimno, a njihovi podaci iz tri vala spojeni su na temelju anonimne lozinke. Svaka organizacija je, kao naknadu za sudjelovanje u istraživanju nakon svakog vala prikupljanja podataka, dobila pisani izvještaj s analizom psihosocijalnih aspekata radne okoline.

Rezultati i rasprava

Podaci su analizirani u okviru metodologije linearnog strukturalnog modeliranja. Kako bismo ispitali pretpostavljene odnose među latentnim varijablama, testirali smo i statistički usporedili nekoliko ugniježđenih autoregresijskih križnih modela. Specifikacija navedenih modela podrazumijeva kontrolu (parcijalizaciju) početne razine zavisne varijable što omogućuje donošenje snažnijih zaključaka o pretpostavljenim uzročno-posljedičnim odnosima. Rezultati analiza pokazali su da suradnja u radu među kolegama ima direktan negativan ukriženi efekt na nesigurnost posla nakon vremenskog perioda od godine dana. Direktni i indirektni ukriženi efekti preostalih dimenzija psihološke klime nisu se pokazali

statistički značajnima. Dakle, navedeni rezultati pokazuju da, u usporedbi s preostalim dimenzijama psihološke klime, kooperativni odnosi među kolegama jedini imaju značajnu ulogu u predviđanju smanjenja subjektivnog doživljaja nesigurnosti posla. Moguće objašnjenje ovog nalaza je da suradnja u radu među kolegama smanjuje kompetitivnost i *bullying* koji su se u prijašnjim istraživanjima pokazali značajnim pozitivnim prediktorima nesigurnosti posla. Nadalje, rezultati analiza pokazali su da profesionalna samoefikasnost ima značajan pozitivan ukriženi efekt na percepciju izazovnosti radnih zadataka nakon vremenskog perioda od šest mjeseci. Na temelju ovog nalaza moguće je zaključiti da zaposlenici koji imaju visoko povjerenje u vlastite sposobnosti uspješnog ovladavanja različitim radnim izazovima, proaktivno odabiru izazovne radne zadatke koji zahtijevaju više odgovornosti i/ili da ti zaposlenici pokazuju nadprosječnu radnu učinkovitost te stoga bivaju odabrani za obavljanje izazovnih radnih zadataka. Nadalje, rezultati testiranja moderatorskih efekata nisu potvrdili postavljene hipoteze: niti jedna dimenzija psihološke klime nije moderirala longitudinalne učinke nesigurnosti posla i percipirane internalne/eksternalne zapošljivosti na indikatore opće dobrobiti zaposlenika (bilo direktno, bilo indirektno preko percipirane kontrole). Međutim, longitudinalan pozitivan efekt percipirane internalne zapošljivosti na percipiranu kontrolu pokazao se snažnijim kod zaposlenika koji su percipirali visoku razinu suradnje u radu među kolegama, te harmonije radne uloge i podrške nadređene osobe. Ovi rezultati pokazuju da socijalni kapital na radnom mjestu predstavlja važan resurs za pojedince koji su visoko zapošljivi unutar organizacije u kojoj rade: njima navedeni resursi omogućuju lakše uspostavu kontrole nad radnom situacijom.

Zaključak

Rezultati ovog istraživanja pružaju ograničenu podršku pretpostavci da resursi iz radne okoline obuhvaćeni dimenzijama psihološke klime mogu biti korišteni u svrhu smanjivanja doživljaja nesigurnosti posla te ublažavanja posljedica ovog stresora na opću dobrobit zaposlenika. Jednako tako, nisu potvrđene pretpostavke da dimenzije psihološke klime pozitivno utječu na percepciju internalne i eksternalne zapošljivosti zaposlenika, odnosno da pojačavaju pozitivne učinke ovih fenomena na opću dobrobit zaposlenika. Međutim, unatoč navedenom ograničenom dometu pozitivnih učinaka dimenzija psihološke klime, naši rezultati upućuju na zaključak da ulaganje u kooperativne odnose među kolegama te poticanje podržavajućeg rukovođenja imaju najveći potencijal smanjivanja percepcije nesigurnosti posla, odnosno jačanja pozitivnih učinaka percipirane (internalne) zapošljivosti na doživljaj kontrole nad radnom situacijom.

Key words: job insecurity, perceived internal employability, perceived external employability, psychological climate, occupational self-efficacy, perceived control, Conservation of Resources theory

Ključne riječi: nesigurnost posla, percipirana internalna zapošljivost, percipirana eksternalna zapošljivost, psihološka klima, profesionalna samoefikasnost, percipirana kontrola, Teorija očuvanja resursa

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INTRODUCTION

Being employed in the context of the contemporary labor market implies coping with diverse challenges. One of the most pronounced concerns *job insecurity*, a subjective experience that refers to the perceived threat of involuntary job loss (Sverke, Hellgren, & Näswall, 2002). As such, job insecurity has been recognized as one of the most severe work stressors that leads to impaired functioning of employees and organizations (for meta-analyses, see Cheng & Chan, 2008; Sverke *et al*., 2002). The global cause of this negative phenomenon can be tracked down in a rapidly changing and unpredictable global market, which has been affected by industrial restructuring, technological development, intensified competition and economic recession over the last few decades (Maslić Seršić & Trkulja, 2009; Sverke & Hellgren, 2002). In order to adapt to these circumstances, organizations are pressured to operate more efficiently with less resources, a situation that leads many of them to adopt strategies such as restructuring, merging and downsizing (Ashford, Lee, & Bobko, 1989). An inevitable consequence for individuals often includes either unemployment or employment under less favorable conditions (e.g., fixed-term contracts and temporary agency work), both trends that raise feelings of job insecurity among many employees (De Cuyper, Notelaers, & De Witte, 2009b; De Witte, 1999). Recent large scale studies substantiate these claims by indicating that a percentage of job-insecure employees, when expressed in absolute figures, entails a sizeable number of people (De Witte, Vander Elst, & De Cuyper, 2015).

The unfavorable nature of the contemporary labor market has inspired researchers to take one step further and identify coping resources that could help employees to maintain job continuity and enhance career development. This brings to the fore the second phenomenon in the focus of this PhD – *perceived employability*, i.e., the subjectively assessed probability of obtaining new employment, either within the current organization (i.e., in the internal labor market – *perceived internal employability*) or with other employers (i.e., in the external labor market – *perceived external employability*) (De Cuyper & De Witte, 2010; Vanhercke, De Cuyper, Peeters, & De Witte, 2014). Considering the global trends described above, perceiving many (vs. few) job opportunities may be beneficial in multiple ways. For example, unpredictable circumstances on the labor market put a lot of unknown elements on one's career prospects. In this regard, perceived employability may promote feelings of control over one's career (Fugate, Kinicki, & Ashforth, 2004). Furthermore, the responsibility for the development of individuals' personal assets (e.g., knowledge, skills, experience) is nowadays shifting more and more from an employer to an employee. This trend puts an emphasis on the

importance of adopting self-managed career strategies (Clarke, 2008), a stance that may be prompted by one's perception of numerous job alternatives. Finally, in times when there is no guarantee for life-long employment, perceiving many job opportunities and acting upon these perceptions may be an adaptive avenue for establishing job continuity and career success (Makikangas, De Cuyper, Mauno, & Kinnunen, 2013).

The empirical evidence on the relevance of both phenomena for employees' and organizational well-being is substantial in the case of job insecurity (Cheng & Chan, 2008; Sverke *et al.*, 2002) or at the beginning but growing in the case of perceived employability (e.g., Berntson & Marklund, 2007; De Cuyper, Bernhard-Oettel, Berntson, De Witte, & Alarco, 2008; Vanhercke *et al.*, 2015). Therefore, we believe that it is reasonable to claim that reducing one's experience of job insecurity or its negative effects on one side and nurturing one's perception of employability or its positive effects on the other side, should be of considerable interest for employees and organizations – a notion that represents the underlying guiding principle of the present PhD. In this regard, two points of departure are worthy of attention. The first concerns the nature of job insecurity and perceived employability: as previously stated, both reflect subjective perceptions that are susceptible to changes (De Witte, 2005; Kirves, Kinnunen, De Cuyper, & Mäkikangas, 2014b). Second and related, they do not occur in a vacuum; rather, they are developed in and partially depend on one's context. In this regard, we propose that the employees' *work environment* has a particular potential to influence subjective perceptions of job insecurity and employability as well as to moderate their relationships with employees' well-being: the work context in which employees operate on a daily basis serves as the most proximal environment of their work-related experiences and perceptions (James, Hater, Gent, & Bruni, 1978). For example, the tasks they perform, roles they pursuit, leaders they respond to and colleagues they interact with constitute some of the basic elements of the organizational context that serve as a platform for the development of work-related identity, emotions, cognitions and behaviors (Frese, 1982). Accordingly, we suggest that job insecurity and perceived employability, as well as their effects on employees' well-being, partially depend on experiences in particular work environment.

Surprisingly, work environmental antecedents and moderators in the job insecurity/perceived employability literature up to this point still represent an understudied research area, especially when compared to other groups of variables (e.g., macro level variables, individual background characteristics, personality traits). This observation is even

more surprising given their susceptibility to change: unlike the static nature of personality characteristics (e.g., locus of control) and inability to influence macro-level variables (e.g., unemployment rate) and individual background characteristics (e.g., age, tenure), work environmental variables have the biggest potential for modification through organizational interventions and policies. Accordingly, we suggest that a more thorough understanding of the effects of work environmental attributes in the realm of job insecurity/perceived employability research – either as the antecedents or as the moderators of their effects on employees' well-being – represents a promising route for informing theory and practice in occupational health psychology.

In this regard, we identify three research gaps that will be addressed in this PhD. The first of them focuses on a question *'Are perceptions of the work environment relevant for shaping perceptions of job insecurity/perceived employability and their effects on employees' well-being?'*. The existing findings indicate that certain elements of work environment relate to both phenomena or moderate its relationships with other criteria. For example, research on job insecurity antecedents and moderators has so far identified several promising attributes of the work environment that either reduce this subjective experience or buffer its negative consequences (e.g., organizational communication, social support) (e.g., Kinnunen, Mauno, Nätti, & Happonen, 2000; Lim, 1996; Smet, Vander Elst, Griep, & De Witte, 2016). In contrast, studies on perceived employability have only recently addressed its antecedents and moderators with relevant criteria in the domain of the work environment (e.g., skill utilization, job autonomy) (e.g., De Cuyper, Mauno, Kinnunen, & Mäkikangas, 2011a; Nelissen, Forrier, & Verbruggen, 2017; Wittekind, Raeder, & Grote, 2010). Although promising, these studies have focused only on some isolated elements of the work environment, while other fundamental aspects with the same potential have to our knowledge still remained unexplored (e.g., job importance). As a consequence, the existing evidence is up to this point lacking a theoretically grounded, comprehensive framework of the work environment that will allow a more complete examination of its effects. The second research gap addresses the question *'What are the relative effects of work environmental variables?'* In this regard, most of the existing studies focused on a single work environmental domain (e.g., role characteristics), while at the same time failing to account for other important domains (e.g., job characteristics) (e.g., Ashford *et al.*, 1989). Since work environments are complex and multivariate in nature, the existing data omits to account for the more complete and realistic image of their effects. Accordingly, the simultaneous analysis of the work environmental

variables might contribute to more accurate knowledge on their relative effects. The third research gap focuses on the question *'How can we explain the effects of the work environmental variables as antecedents of job insecurity/perceived employability (i.e., mediation) and as moderators of the effects from job insecurity/perceived employability to employees' well-being (i.e., mediated moderation)?'*. Although the underlying mechanisms of the direct and moderating effects of work environmental variables had been alluded to in several studies (e.g., Vander Elst, Baillien, De Cuyper, & De Witte, 2010), empirical inquiry is up to this point still limited (for two notable exceptions, see Richter, Tavfelin, & Sverke, 2018; Smet *et al.*, 2016). However, we believe this knowledge is relevant for both theory and managerial practice development: it has the potential to further advance the insight into the relative effects of the comprehensive set of work environmental variables (i.e., logically complement the first and second research question), which in turn might prove useful for designing effective interventions that promote employees' well-being. Accounting for three research gaps, we derive the following PhD's objectives:

Objective 1: to examine the relative direct impacts of the comprehensive set of work environmental variables on job insecurity accounting for the potential underlying mechanism.

Objective 2: to examine the relative direct impacts of the comprehensive set of work environmental variables on perceived internal and perceived external employability accounting for the potential underlying mechanism.

Objective 3: to examine the relative moderating impacts of the comprehensive set of work environmental variables on the effects from job insecurity to employees' well-being accounting for the potential underlying mechanism.

Objective 4: to examine the relative moderating impacts of the comprehensive set of work environmental variables on the effects from perceived internal and perceived external employability to employees' well-being accounting for the potential underlying mechanism.

In response to the first and second gap, we employ a comprehensive model of the work environment – *the psychological climate (PC) model* – as a molar construct comprising of the most readily identifiable set of work environmental attributes that reflect what is psychologically meaningful to employees in their work setting (James *et al.*, 2008). As such, the dimensions of the PC are organized along four situational referents (i.e., cognitive schemata) that are intended to measure work environments as they are cognitively represented by employees: (1) *job challenge and autonomy*, (2) *role stress and lack of harmony*, (3) *leadership facilitation and support* and (4) *work group cooperation, warmth and friendliness* (James & James, 1992). In response to the third gap, we introduce two explaining mechanisms that are supposed to account for the hypothesized effects of work environmental variables: (1) *occupational self-efficacy* as the mediator of the main effects from PC dimensions to job insecurity/perceived employability and (2) *perceived organizational control* (hereinafter referred to as perceived control) as the mediator of the moderating effects of PC dimensions on the effects from job insecurity/perceived employability to employees' well-being. Whereas occupational self-efficacy taps into the competence one feels regarding his/her capabilities to successfully fulfill job assignments (Rigotti, Schyns, & Mohr, 2008), perceived control refers to one's appraisal of the extent to which one has the control over his/her work situation (Vander Elst, Van den Broeck, De Cuyper, & De Witte, 2014b). As such, occupational self-efficacy reflects a more stable, personal attribute. In contrast, perceived control represents a less stable, situational appraisal of the control one feels (s)he has within the current organizational situation (Urbanaviciute, Lazauskaite-Zabielske, Vander Elst, Bagdziuniene, & De Witte, 2015). Figure 1 represents the simplified version of our research model[1].

[1] Note that the four PC dimensions in this PhD are named job challenge, role harmony, leader support and co-worker cooperation (the rationale for this is provided on p. 9).

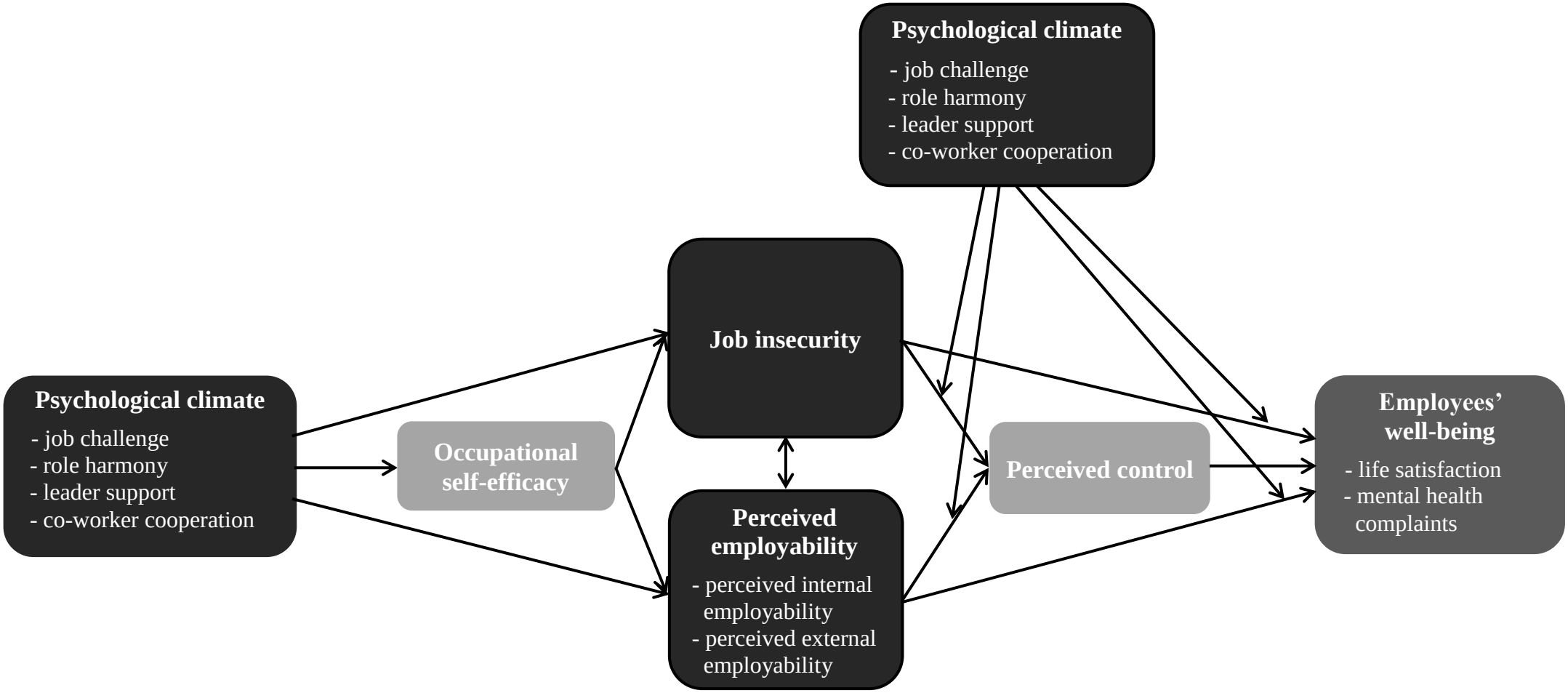

Figure 1. The simplified research model

In all, this PhD aims to make the following contributions to the literature. From a theoretical stance, it aims to advance the knowledge on the role and utility of employees' work environment in the job insecurity and perceived employability literature. As such, it examines two distinct influences of work environmental variables: plausible direct effects on job insecurity and perceived internal/external employability and plausible moderating effects on the effects from job insecurity and perceived internal/external employability to employees' well-being. In addressing each, it aims to tap into the comprehensive set of work environmental variables, some of which have not been studied in relation to job insecurity or perceived employability yet. Furthermore, the effects of the broad spectrum of work environmental variables are tested simultaneously, an approach that enables more accurate insights into their relative effects. Finally, in addressing the direct and moderating effects of work environmental variables, it takes one step further and examines their potential underlying mechanisms. From a methodological stance, this PhD represents a 3-wave cross-lagged panel study, a research design that enables a more powerful test of hypothesized causality between the study variables, as well as an accurate test of mediation effects (Burkholder & Harlow, 2003). More specifically, cross-lagged panel research design enables us to test and statistically compare the proposed (hereinafter referred to as normal) causation effects (see Figure 1) with the alternative reversed and reciprocal causation effects. As such, this longitudinal study contrasts the majority of existing studies that have tested either direct or moderating effects of work environmental variables using cross-sectional designs (e.g., Richter *et al*., 2018; Vander Elst *et al.*, 2010). Finally, from a practitioners' point of view, this PhD aims to provide guidelines on how organizations can decrease the subjective experience of job insecurity and/or its negative effects on employees' well-being, as well as enhance perceptions of employability and/or its positive effects on employees' well-being, a knowledge from which both employees and employers might benefit from.

In the following chapters of this introduction, we first provide more thorough definitions of the core PhD's constructs – PC, job insecurity and perceived internal/external employability. When describing the PC, we place an emphasis on the theoretical utility of this construct in the job insecurity and perceived employability literature. The overview of core constructs is followed by paragraphs in which we develop the study hypotheses along insights from the Conservation of Resources (COR) theory (Hobfoll, Halbesleben, Neveu, & Westman, 2018), an integrative theoretical framework that has already been extensively used in the job insecurity and perceived employability literature (e.g., De Cuyper, Raeder, Van der Heijden, & Wittekind, 2012b; Philippaers, De Cuyper, Forrier, Vander Elst, & De Witte,

2016; Vander Elst *et al*., 2014b; Vanhercke *et al*., 2015). These paragraphs first provide theoretical arguments for the direct and moderating effects of work environmental variables. Then, each effect is more precisely delineated into research hypotheses that explicitly account for the potential underlying mechanisms.

Psychological climate: defining the construct and its implications for job insecurity and perceived employability

Psychological climate is defined as an individual's psychologically meaningful cognitive representation of relatively proximal work environmental attributes (Parker *et al.*, 2003). James and James (1989) conceptualized this construct as a set of four higher-order factors that were empirically derived from extensive validation studies. The authors departed from an exhaustive literature review aiming to "develop a comprehensive measure of the perceptual domains that are psychologically meaningful and significant for most individuals in work environments" (James & Sells, 1981, p. 281). As a result, they identified 35 *a priori* composites (i.e., measures of work environmental attributes) that were administered across diverse samples (e.g., the US Navy, ICT specialists, firefighters). Based on the results of exploratory and confirmatory factor analyses, the authors demonstrated that a comprehensive set of work environmental attributes can be loaded onto factors that were defined by four situational referents (i.e., jobs, roles, leader and work-group) and conceptually corresponded to the four most relevant work-related values (i.e., desire for challenge, independence and responsibility; desire for clarity, harmony and justice; desire for work facilitation, support and recognition; and desire for warm and friendly social relations – see Locke, 1976) (James & James, 1989). For example, measures of job challenge and variety, job importance and job autonomy invariantly loaded on a single factor called job challenge and autonomy; measures of role ambiguity, role conflict and role overload loaded on a factor called role stress and lack of harmony; measures of leader trust and support, leader goal facilitation and psychological influence (participative decision making) loaded on a factor called leadership facilitation and support; and work group cooperation, work group friendliness and warmth, and reputation for effectiveness loaded on a factor called work group cooperation, friendliness, and warmth. These results led authors to argue that PC dimensions represent value-engendered schemas that individuals employ to evaluate (i) job tasks, with regards to their potential to enable autonomous engagement in challenging and important assignments; (ii) roles, with regards to their potential to hinder the fulfillment of one's assignments and responsibilities; (iii) leaders, with regards to the extent to which (s)he facilitates the subordinate's work and encourages

him/her to participate in important decisions; and (iv) work-groups, with regards to their cooperativeness and friendliness. In this PhD, we have drawn upon the conceptual core of PC dimensions and, for reasons of parsimony, will refer to them as *job challenge*, *role harmony*, *leader support* and *co-worker cooperation* from this point onwards[2].

We believe that the PC model is a particularly good fit with the present PhD. First, the model was derived from an extensive literature review with an intention to encompass a comprehensive set of perceptual variables that have relatively direct and immediate ties to the employees' experiences in their work environments (Jones & James, 1979). These variables loaded onto four factors representing four situational referents – job, role, leader and work group – that serve as cognitive organizing principles for perceptual variables (James & James, 1992). The implication is: if job challenge, role harmony, leader support and co-worker cooperation indeed reflect how employees cognitively organize and represent their work environments, than the PC model enables us to encompass the comprehensive set of perceptually most salient work environmental variables, as well as examine their relative impacts. Second and related, each higher-order PC factor reflects the conceptual similarities between more specific subdimensions (i.e., PC variables). As such, it represents a more generalized and parsimonious conceptualization of the four work environmental domains, whose meaning is above and beyond that of any particular variable. This is important because higher-order abstractions of more specific dimensions should provide more predictive power (cf. Fugate & Kinicki, 2008). Third, PC factors are supposed to be engendered by work-relevant values. As values serve as "latent indicators of what it is about environments that is significant to individuals" (James *et al*., 2008, p. 8), PC perceptions enable us to assess the work environment in terms of their psychological significance to the employees. We suggest that those characteristics of work environments that are interpreted as psychologically meaningful for employees are the ones that represent the core aspects of everyday work experience. As such, they presumably have the biggest potential to influence employees' subjective appraisals – job insecurity and perceived employability, as well as their effects on other variables.

We would like to additionally emphasize the difference between psychological and organizational climate as these two constructs are often misleadingly treated as synonyms in

[2] The role stress and lack of harmony dimension has been reframed into a role harmony dimension in order to reflect the work environmental resource and, as such, coincide with the terminology used in the Conservation of Resources theory (Hobfoll *et al.*, 2018), as described in following paragraphs. Additionally, we refer to co-workers instead of work-group in the present study. While this term does not change the meaning of the dimension, it does increase its generalizability to more diverse organizational structures.

the literature. Psychological and organizational climate differ in the level of theory, measurement and analysis (Parker *et al*., 2003). More specifically, PC represents an individual attribute and as such should be conceptualized, measured and analyzed at the individual level (James & Jones, 1974; Parker *et al*., 2003). In this vein, James *et al*. (1978) argued that each individual perceives a particular situation in his/her unique way and that this subjectively constructed reality, not the objective situational stimuli, is generally more important in the prediction of many individual outcomes. According to these authors, differences in perception are considered psychologically too important to be regarded as error variance because they reflect how a particular individual cognitively constructs (e.g., filters, interprets and structures) particular situational attributes. Therefore, the perception of a work environment, when conceptualized as PC, is inseparably related to a perceiver and reflects a person × situation (P × S) interaction (James *et al.*, 1978). As such, it represents an important mediating link between organizational characteristics and consequential work-related outcomes (Parker *et al*., 2003). In contrast, organizational climate represents a group-level construct and as such should be conceptualized and analyzed at the level of some higher-level unit (e.g., team, department, organization). It may be measured as an aggregate of individuals' perceptions (after demonstrating the appropriate level of within-unit agreement) (Sušanj, 2005). In that case, one is interested in the average score of the particular team or organization, for example, and the variance in individual's scores is regarded as an error. Organizational climate may also be measured as an objective organizational feature (e.g., organizational structure) where the individual merely serves as key informant about that feature (Sušanj, 2005). The decision between psychological and organizational climate is typically made on the basis of one's theoretical interest and research aims (Parker *et al*., 2003). Accordingly, the choice of PC in this PhD was grounded on the following. Job insecurity and perceived employability represent two phenomena that are subjective in nature: two individuals in the identical objective situation (e.g., with identical job positions and personal qualifications) may differently perceive their chances of losing the current job or obtaining a new one (Jacobson, 1991; Vanhercke *et al.*, 2014). This differences may, for example, partially stem from different levels of confidence in one's knowledge, skills and abilities (Philippaers, 2017). This reasoning strongly coincides with the underlying theoretical logic of the PC construct. Accordingly, we suggest that employees' subjective appraisals of their job insecurity and employability might particularly depend on their subjective interpretation and evaluation of the work environment, rather than on the objective characteristics of the work environment *per se* – and that is what psychological climate represents.

Job insecurity and perceived employability: definitions and association between the constructs

Job insecurity

Although several definitions of job insecurity are available in the literature, one of the most commonly used entails a perceived threat of involuntary job loss and worries related to that threat (De Witte, 2005; Sverke *et al.*, 2002). As such, job insecurity is conceptualized as a unidimensional construct representing overall uncertainty regarding the future continuity of the current job (De Witte, 1999; De Witte, 2005; Sverke & Hellgren, 2002). Putted in a more straightforward manner, job insecurity refers to the perceived threat of unemployment which implies its "psychological position" between secure employment and unemployment (De Witte, 2005). Two additional issues related to the definition are worthwhile highlighting. First, as described in previous chapter, job insecurity is a subjective experience or perception: it entails a subjective interpretation of an objective situation (e.g. organizational downsizing, type of employment contract). Second, job insecurity represents an involuntary state since it does not relate to employees who deliberately choose temporary work arrangements (e.g. temporary job contracts). In other words, it implies a discrepancy between one's preferred and perceived level of job security (De Witte, 2005).

In line with these characteristics, job insecurity has been identified among the most severe work stressors (De Witte, 2005). Indeed, the inherent uncertainty about what will happen with one's job in the future, makes job insecurity a particularly cumbersome stressor to cope with, where not knowing whether job loss will actually occur makes it difficult for an employee to take concrete actions and prepare for the future (e.g., by starting to look for another job) (Smet *et al.*, 2016). As such, the negative effects of job insecurity have been demonstrated on a broad spectrum of individual and organizational outcomes (e.g., job satisfaction, life satisfaction, psychological well-being, physical and mental health, job involvement, turnover intention and job performance) (for meta-analyses, see Cheng and Chan, 2008; Sverke *et al.*, 2002; for a review of longitudinal effects, see De Witte, Pienaar, & De Cuyper, 2016).

Perceived employability

In comparison to job insecurity, the concept of employability emerged more recently in the psychological literature. Although intuitively self-explanatory and broadly used, the employability concept has stumbled upon criticism referring to it as a "rather fuzzy concept" (de Grip, van Loo, & Sanders, 2004, p. 215) or "the latest buzz-word" (Verhaar & Smulders,

1999, p. 268). Indeed, individual's chance of finding a new job, as employability is broadly defined (e.g., Berntson & Marklund, 2007), has been conceptualized in various ways (e.g., as competencies, Van der Heijde & Van der Heijden, 2006; dispositions, Fugate & Kinicki, 2008; for an overview of studies on dispositional employability in Croatia, see Maslić Seršić & Tomas, 2014a; Maslić Seršić & Tomas, 2014b; Maslić Seršić & Tomas, 2015; number of job transitions, Thiessen & Looker, 1999; perceived employability; Vanhercke *et al.*, 2014). In response, much research effort has been invested into building coherent models that would integrate and causally relate different notions on employability, with the employability process model representing an exemplary case (developed by Forrier, Sels, & Stynen, 2009; adapted by Vanhercke *et al*., 2014). Perceived employability occupies a central role in that model: defined as the individual's perception of his/her chance to obtain new employment (Berntson, Sverke, & Marklund, 2006), it is predicted by, but also predicts employee's movement capital (e.g., competencies, dispositions) and job transitions, thereby forming a dynamic feedback loop (cf. Forrier *et al.*, 2009; Forrier, Verbruggen, & De Cuyper, 2015; Vanhercke *et al*., 2014).

Among the available conceptualizations encompassed by the employability process model, this PhD focuses on perceived employability for the following reasons. First, perceived employability plays a crucial role in predicting relevant individual's outcomes, such as well-being (Vanhercke *et al.*, 2015), attitudes (Philippaers, De Cuyper, & Forrier, 2017) and behaviors (Forrier *et al*., 2015; Tomas & Maslić Seršić, 2017). In comparison to approaches that conceptualize employability in terms of one's personal characteristics (e.g., dispositional employability; Fugate & Kinicki, 2008), individual's subjective appraisal of his/her chance for a new job accounts for both person- (e.g., competencies and disposition) and context-related factors (e.g., available vacancies) (Philippaers, 2017). Therefore, perceived employability is broader in scope (i.e., encompasses most relevant factors that realistically determine one's chance of a new job) and as such may also be more predictive for individuals' reactions. In addition, perceived employability is inherently subjective. This is relevant because, as already outlined in relation to the psychological climate, one's perception of reality, rather than reality *per se*, drives and shapes individual feelings, attitudes and behaviors (Lazarus & Folkman, 1984). In addition to its predictive validity, the literature on perceived employability differentiates between one's perceived chances for a new job within the current organization (i.e., perceived internal employability) and with other employers (i.e., perceived external employability) (De Cuyper & De Witte, 2010; Vanhercke *et al.*, 2014). Accordingly, in this PhD we account for both notions of perceived employability: as both are

relevant for assuring successful careers, it may be relevant to investigate how each can be shaped by employees' work environment (cf. Nelissen, 2016).

The associations between job insecurity and perceived internal/external employability

As evident from the provided definitions, job insecurity and perceived internal/external employability share several conceptual similarities (see De Cuyper, Van den Broeck, & De Witte, 2015 for an extensive discussion about similarities and differences between the constructs). First, each reflects individual's subjective appraisals of an objective situation. Second, each has a reference to one's (potential) future scenario: job insecurity to potential future job loss and perceived employability to potential future job transitions (within the current organization or with another employer). And third, each has relevant, yet opposite implications for employee's well-being: job insecurity has been framed as a work stressor that leads to impaired well-being (Cheng & Chan, 2008; Sverke *et al.*, 2002), whereas perceived employability has been framed as a personal resource that promotes employees' well-being (Vanhercke *et al*., 2015). Summarized, these notions hint that (i) job insecurity and perceived employability are related and (ii) the relation between them is negative. Indeed, most of the existing studies empirically substantiate these claims with effect sizes varying from weak (e.g. -.14 in De Cuyper *et al.*, 2008; -.22 in Berntson, Näswall, & Sverke, 2010; De Cuyper, Mäkikangas, Kinnunen, Mauno, & De Witte, 2012a) to moderate (e.g., -.29 in Kirves, De Cuyper, Kinnunen, & Nätti, 2011; -.37 in Kang, Gold and Kim, 2012).

There is also evidence that the relationship between job insecurity and perceived employability may be more complex when tested in relation to other variables. For example, several studies demonstrated that job insecurity mediates the relationship between perceived employability and employees' well-being (De Cuyper *et al.*, 2008; De Cuyper *et al.*, 2012a), and vice versa (De Cuyper *et al.*, 2012a). Furthermore, other studies found that perceived employability moderates the relations between job insecurity and several individual and organizational outcomes (e.g., Berntson *et al.*, 2010; Silla, De Cuyper, Gracia, Peiro, & De Witte, 2009). Notwithstanding the relevance of these findings, in this PhD we take the most straightforward perspective on the associations between job insecurity and perceived internal/external employability. More specifically, we propose negative associations between job insecurity and both perceived internal and perceived external employability within each of the three measurement occasions (as indicated by the two-headed arrow in Figure 1). We do so for two reasons. First, the present literature does not indicate which one of the more complex relations (i.e., reciprocal and direct effects or moderation) may be "more accurate".

Quite the opposite, it has been suggested that both links are equally plausible (De Witte & De Cuyper, 2015). In contrast, most of the researchers agree and demonstrate that the association between job insecurity and perceived internal/external employability is negative. The second reason relates to the aims of this PhD. In particular, the focus here is placed on the direct and moderating associations between work environmental variables, and job insecurity and perceived internal/external employability. Accordingly, guided by the principle of parsimony, we reasoned that specifying and testing more complex assumptions about the associations between job insecurity and perceived internal/external employability may confound the effects that are of main interest in this PhD, that is, the effects of work environment.

The hypothesized research model

In developing the PhD's hypotheses, we departed from the basic principles and corollaries of the Conservation of Resources (COR) theory (Hobfoll, 2001; Hobfoll *et al.*, 2018) and integrated them with more specific insights from theories that relate to the micro level of a particular resource (e.g., Social Cognitive theory, SCT; Bandura, 1989). This approach has been advocated by Hobfoll and aligns with the recent trends in the COR literature (cf., Hobfoll *et al*., 2018). Accordingly, the COR theory represents an overarching theoretical framework for the whole research model, whereas consistent assumptions from other theories were used to more specifically delineate particular hypotheses. In the following paragraphs, we first translate each of the central PhD's constructs – psychological climate, job insecurity and perceived internal/external employability – into the terminology of the COR theory. Then we develop study hypotheses corresponding to the (i) main effects of PC dimensions on job insecurity and perceived internal/external employability via occupational self-efficacy and (ii) moderating effects of PC dimensions on the effects of job insecurity and perceived internal/external employability on employee's well-being via perceived control.

Psychological climate, job insecurity and perceived internal/external employability framed within the COR theory

The COR theory places a central focus on individuals' resources defined as all entities that people centrally value as such or that serve as means to obtain these valued entities (Hobfoll, 2002). In line with this definition, Hobfoll delineated resources into four categories: object resources (e.g., a house), condition resources (e.g., an employment), personal resources (e.g., self-efficacy) and energy resources (e.g., knowledge). To address one of the main critics of the COR theory, namely that the broad definition of resources "opens the possibility of

scholars defining nearly anything and everything as a resource to suit their research questions" (Hobfoll *et al*., 2018, p. 113), Hobfoll *et al.* (2018) emphasized that a particular entity needs to have the following features in order to be framed as a COR resource. First, it must be central for survival or support goal achievement (see also Halbesleben, Neveu, Paustian-Underdahl, & Westman, 2014). Second, it must be held as a resource for a large group of individuals who share a set of cultural traditions (Hobfoll, 2002).

The theoretical assumptions about PC dimensions coincide with the definition of COR resources in line with the following. As PC dimensions are presumably engendered by four work-relevant values (Locke, 1976), they reflects what it is about work environments that is psychologically significant and meaningful to employees (James *et al.*, 2008). In other words, they encompass the aspects of work environments that employees centrally value as such (cf. Hobfoll, 2002). Furthermore, departing from an extensive literature review, Locke (1976) posited that four work-relevant values reflect what is relevant for most employees in their surroundings. Therefore, every specific value expressed by a particular individual is believed to be a manifestation of the four more general latent psychological values. According to Locke's proposition, most employees have a desire for (1) challenge, independence and responsibility; (2) clarity, harmony and justice; (3) work facilitation, support, and recognition; and (4) warm and friendly social relations in their work environments (Locke, 1976). Therefore, it follows that the corresponding PC dimensions – job challenge, role harmony, leader support and co-worker cooperation – should reflect elements of work environments that are commonly valued among a large group of employees. Finally, abundant literature demonstrates that PC dimensions are functional in achieving various goals. For example, the meta-analysis conducted by Parker *et al.* (2003) showed that PC perceptions have positive relationships with employees' job satisfaction, psychological well-being, motivation, and performance.

When positioning job insecurity and perceived internal/external employability within the COR theory, we should depart from the notion that employment has already been classified as a COR resource (cf. Hobfoll, 2001). In particular, it is commonly valued by many individuals as it provides means for survival (i.e., income), as well as facilitates the attainment of other goals, such as establishment of one's social status and social networks (Jahoda, 1982). Indeed, whether a person is employed or not plays a central role in the social identity of most adult people (Selenko, Mäkikangas, & Stride, 2017). In line with this classification of employment, job insecurity has been framed as a threat to a valuable resource (c.f. Vander Elst *et al.*, 2014b). As COR theory posits that stress occurs when people feel their

resources are threatened with loss (Hobfoll, 2001), this theoretical framework has proved useful in predicting various outcomes of job insecurity (e.g., Selenko & Batinic, 2013; Vander Elst *et al.*, 2014b). In this PhD, we aim to extend the utility of COR theory in the job insecurity literature and use its assumptions to examine whether a resourceful work environment may prove effective in reducing job insecurity via occupational self-efficacy and/or its potential negative effects on employees' well-being via perceived control.

In contrast to job insecurity, perceived employability has been framed as yet another COR resource (cf. Kirves *et al.*, 2014b; Vanhercke *et al.*, 2015). As such, perceiving high chances of finding a new job, either within the internal or external labor market, directly relates to the achievement of a goal that is valuable to most working adults: having continuous employment. Much in line with this notion, we suggest that both perceived internal and perceived external employability represent an exemplary case of what Hobfoll *et al.* (2018) termed as "sustaining resources for times of [potential] future need" (p. 104). Furthermore, perceived employability is assumed to engender the feelings of control and mastery over one's future employment situation and career in general (De Cuyper, Van der Heijden, & De Witte, 2011b). Indeed, perceiving that one could easily find another job also implies that (s)he has more choice and opportunities to change the current employment situation whenever considered necessary (Kirves *et al.*, 2014b). Greater choice and more opportunities in turn, relate to greater resiliency, particularly in the context of today's volatile labor market (Vanhercke *et al.*, 2015). This notions strongly comply with Hobfoll's notion of personal resources as aspect of the self that are generally linked to personal resiliency and the ability to control and impact one's environment (Hobfoll, Johnson, Ennis, & Jackson, 2003). Therefore, in the remainder, we frame both perceived internal and external employability as two personal COR resources. As with job insecurity, we use COR assumptions to examine whether resourceful work environment may be effective in enhancing perceived internal/external employability via occupational self-efficacy and/or its potential positive effects on employees' well-being via perceived control. Because we are not aware of any studies that have utilized higher-order PC factors in relation to job insecurity and perceived internal/external employability, in the remainder we refer to a reasonable proxy – results obtained on separate PC subdimensions.

Psychological climate dimensions predicting job insecurity and perceived internal/external employability: the mediating role of occupational-self efficacy

Psychological climate dimensions as antecedents of job insecurity

In positioning PC dimensions as antecedents of job insecurity, we depart from the basic tenet of the COR theory which states that people strive to protect the things that they centrally value (Hobfoll, 1989). However, in order to do so, they need to invest resources they already possess. As a result, those who possess more resources are generally more capable of protecting their resources, while those with fewer resources are more vulnerable to resource loss (Hobfoll *et al.*, 2018). Building on these COR premises, we anticipate that employees will be motivated to protect their employment, i.e., counteract the perceived threat of potential job loss. However, the extent to which this is successful will depend on the level of available resources: those with more resources may feel more secure about keeping their job, whereas those who are less resource-endowed may experience higher levels of job insecurity (Holmgreen, Tirone, Gerhart, & Hobfoll, 2017). Accordingly, we suggest that working in resource-rich environments may lead to a lower level of perceived threat of potential job loss.

As such, job challenge may foster employees' human capital and job performance (cf. Hackman & Oldham, 1976), making them more valuable to the organization and less vulnerable to potential job loss (De Cuyper *et al.*, 2008). More specifically, employees who are given more opportunities and greater autonomy to perform challenging and important tasks are more able and willing to extend their current knowledge and skills due to the learning and motivational potential of these job characteristics (Bakker & Demerouti, 2007; Hackman & Oldham, 1976). As a result, they may more easily enter and remain in the core of the labor market, a segment of labor market structure that is characterized by more stable and attractive job positions (often manifested through permanent contract) (De Cuyper *et al.*, 2009b). In this regard, Mauno and Kinnunen (2002) found that job control negatively predicted job insecurity among women and men (although stronger empirical support was found for the female gender). In addition, Feather and Rauter (2004) demonstrated that job insecurity negatively related to skill utilization and influence (two constructs that conceptually correspond to job challenge and job autonomy), but failed to demonstrate a significant relationship between job insecurity and job variety.

Furthermore, role harmony may facilitate employee fulfillment of prescribed roles, where employees who are clear about and consistent with their job responsibilities should more easily complete these responsibilities (Keim, Landis, Pierce, & Earnest, 2014). In turn,

these employees might feel less anxious about and more in control over their future job situation (Ashford *et al*., 1989). Consistent with these assumptions, Keim *et al.*'s (2014) meta-analysis revealed positive associations between both role ambiguity and role conflict and job insecurity. In addition, Ashford *et al*. (1989) demonstrated that role ambiguity and role conflict negatively contribute to employees' experience of job security.

Third, support from the workplace leader may also facilitate successful task accomplishment and as a result, decrease employee's perception that (s)he may be dismissed. Additionally, perceiving that a leader is receptive for one's ideas and opinions and includes him/her in the decision making process may indicate that an employee is valuable to the organization (Shoss, 2017). In line with this propositions, Lim (1997) found a negative relationship between supervisor support and job insecurity, while Probst (2005) reported a negative relationship between participative decision making and job insecurity. Furthermore, Richter *et al.* (2018) demonstrated that employee-oriented leadership, but not production-oriented leadership had a direct negative effect on job insecurity. However, production-oriented leadership negatively predicted job insecurity via goal clarity.

Finally, cooperation among co-workers may reduce the possibility of competition and conflicts among employees, both of which are conducive for the development of job insecurity perceptions (Glambek, Matthiesen, Hetland, & Einarsen, 2014). In addition, friction among co-workers may drain employees' energy for work, making them less efficient and successful, and thereby more vulnerable to potential job loss. Consistent with these assumptions Lim (1997) and Baillien and De Witte (2009) demonstrated a negative relationship between job insecurity and co-worker support. Furthermore, Glambek *et al.* (2014) found that exposure to bullying behaviors predicted an increase in job insecurity over a 6-month period, while Glambek, Skogstad and Einarsen (2018) demonstrated that workplace bullying increased job insecurity across a 2-year time lag.

Psychological climate dimensions as antecedents of perceived internal/external employability

The basic tenet of the COR theory also states that people strive to obtain and foster new resources (Hobfoll, 2001). Again, in order to do so, they must invest their existing resources. What follows from this assumption is that those who already possess greater resources are not only less vulnerable to resources loss, but are also more capable of resource gain (Hobfoll *et al.*, 2018). Departing from these COR assumptions, we suggest that employees will be motivated to foster their chances of finding a new job, both within the internal and external labor market as possession of these particular resources is integral to resilience within volatile

labor markets (cf. Hobfoll *et al.,* 2018). The ones who will be more successful in that might be the ones who are more endowed with resources in their work environments. In this regard, one's current labor market position might provide an employee with various resources that nurture his/her perceived internal/external employability, for example by providing plenty of learning opportunities that upgrade one' professional expertise (Nelissen, 2016; van Emmerik, Schreurs, De Cuyper, Jawahar, & Peeters, 2012). Accordingly, we suggest that employees whose work environments are characterized by challenging jobs, harmonious work roles, supporting leaders and cooperative co-workers may more easily build on their sense of being employable, either with the current or with another employer. Although we acknowledge that the effects of employees' work environment may be more apparent with regards to employment possibilities within the current organization (i.e., perceived internal employability), we expect that similar mechanisms (e.g., enhanced professional expertise) operate in enhancing the employment possibilities in some other organization (i.e., perceived external employability). Therefore, we expect that the longitudinal fostering potential of a particular PC dimension on both perceived internal and perceived external employability may be evident in the following.

First, job challenge may, as already stated, advance the accumulation of employees' human capital, which represents one of the main determinants of perceived internal and perceived external employability (Forrier *et al.*, 2009; Vanhercke *et al.*, 2014). Accordingly, having many opportunities to advance one's knowledge and skills through challenging and important tasks may keep employees up-to date with current trends in their industry and in turn enhance their perceived chance of finding a new job within the current or in some other organization (van Harten, Knies, & Leisink, 2016). Additionally, perceiving that one is given the responsibility to autonomously conduct tasks that are highly important may signal to an employee that (s)he is a valuable member of that particular organization thereby increasing his/her perceived internal employability (cf. Nelissen *et al.*, 2017). In line with these predictions, De Cuyper *et al.* (2011a) found a positive relationship between job control and perceived external employability. Nelissen *et al.* (2017) demonstrated that skill utilization, but not job autonomy positively predicted perceived internal employability. We should note that the authors did not hypothesize and test the effect from these two job resources on perceived external employability. In addition, van Harten *et al.* (2016) found that job autonomy and task variety predicted a higher level of perceived employment opportunities via employees' up-to-date expertise. In their study, perceived employment opportunities consisted of items measuring employees' expectations with regards to gaining promotion within the current

organization, getting a job elsewhere, and continuing working in their current job. Finally, van Emmerik *et al.* (2012) examined the mediating role of motivational processes in the relationship between job resources and perceived employability. Their results indicated that the relationship between job resources (operationalized as a second order factor loading on job autonomy, job feedback and job variety) and perceived employability (operationalized by items measuring employees' self-perceived level of skills, competencies and adaptability) was fully mediated by extrinsic, but not by intrinsic motivation.

Role harmony may also facilitate the learning potential of one's workplace as employees may more easily attain new knowledge and skills if they are clear about and consistent with their job responsibilities. Moreover, employees who are certain about what is expected from them may more accurately evaluate whether they have the necessary knowledge and skills to perform their job and whether they need to invest additional efforts in developing their job-related qualifications (Hall, 2008). As such, they may be more self-aware of their strengths and weaknesses and more able to determine the direction in which they should further develop in order to remain attractive to other potential employers (Forrier *et al.*, 2009). Finally, lack of role harmony may induce feelings of helplessness which may inhibit employees' proactivity and in turn, reduce perceptions of internal and external employability (Fugate & Kinicki, 2008). Although we are not aware of the studies that have examined characteristics of one's work role in relation to perceived employability, studies examining role characteristics in relation to employees' human capital do provide empirical support for this line of reasoning. For example, Hall (2008) and McEnrue (1984) found a positive association between role clarity and employees' self-perceived competence. In addition, Gruman, Saks and Zweig (2006) demonstrated that role clarity related positively with several newcomers' proactive behaviors, such as feedback- and information-seeking behaviors and building relationship with one's leader.

Much in line with arguments based on human capital enhancement, leader support may prove useful in enhancing employees' competence. As such, employees may more easily build up their knowledge and skills if their leaders emphasize the importance and facilitate the accomplishment of work goals. Departing from the Social Exchange Theory, we also posit that under such circumstances employees may not only be more able, but also more willing to continuously update their expertise in order to reciprocate the investments from their leader (Cropanzano & Mitchell, 2005). Consistent with these assumptions, van Harten *et al.* (2016) demonstrated that supervisor support of employees' development predicted a higher level of perceived employment opportunities via employees' willingness to develop. However, De

Cuyper *et al.* (2011a) found non-significant relationships between social support from the supervisor and perceived employability among two distinct groups of employees, health care workers and university employees.

Finally, cooperative employees are willing to share their knowledge and experience with each other and provide help when there is a problem at work. Therefore, co-worker cooperation may facilitate positive learning outcomes, especially when one is confronted with new tasks (Billet, 2002). Accordingly, employees surrounded by cooperative co-workers may more easily acquire new knowledge and develop new skills that in turn make them more attractive at the internal and external labor market. In addition, cooperation among co-workers may facilitate the achievement of work-related goals thereby increasing one's sense of competence. The empirical studies examining the associations between perceived employability and relationships among co-workers are scarce. In one study on workplace bullying, De Cuyper, Baillien and De Witte (2009a) reported a negative correlation between victims' reports of bullying behavior and their perceived external employability. Another study found a non-significant correlation among perceived employability and social support from colleagues (De Cuyper *et al.*, 2011a).

The mediating role of occupational self-efficacy

The theoretical arguments positioning PC dimensions as antecedents of job insecurity and perceived internal/external employability indicate that the effects of PC dimensions might not be straightforward. Rather, work environments endowed with high levels of job challenge, role harmony, leader support and co-worker cooperation may be conducive for the development of various personal resources that in turn advance employees' position on the labor market, either in terms of reduced job insecurity or in terms of increased perceived employability. In this PhD we focus on one of them that conceptually closely relates to each provided theoretical explanation: occupational self-efficacy. Occupational self-efficacy represents a domain-specific conceptualization of self-efficacy that, in our opinion, particularly matches all three outcomes of interest, job insecurity, perceived internal and perceived external employability: while these three constructs encompass one's perceived chances of losing a current job or finding a new one (at the internal or external labor market), occupational efficacy is defined as an individual's confidence in his/her abilities to successfully perform a job and master various job-related challenges (Schyns & von Collani, 2002). As such, this domain-specific conceptualization of self-efficacy is specific enough to relate only to the domain of one's working life. On the other hand, it represents an assessment

of individuals' sense of competence with regards to their occupation. As such, it is broad enough to relate to one's current job or to potential other jobs at the internal or external labor market (cf. Schyns, Torka, & Gössling, 2007).

We believe that three aspects of occupational self-efficacy justify its' hypothesized mediating role of the effects from PC dimensions to job insecurity and perceived internal/external employability. First, although both represent personal resources in the work domain, occupational self-efficacy and perceived internal/external employability represent distinct constructs: the former concerns the perceived possibilities to perform well in a job and as such primarily relates to the individual, whereas the latter refers to the perceived employment prospects on the internal or external labor market, thereby also accounting for the context (De Cuyper *et al*., 2012b). Second, occupational self-efficacy is a dynamic construct that varies over time and in response to one's experience in a particular work environment (cf. Parker, 1998). Third, self-efficacy beliefs influence outcomes people anticipate: those who are convinced they can perform well in a certain environment expect to gain favorable outcomes, whereas those who believe they will not meet the performance standards conjure up negative outcomes (Bandura, 2009). Accordingly, job insecurity and perceived internal/external employability may be conditional on individuals' self-efficacy beliefs: employees who believe they can perform well in a job may perceive lower chances of losing the current job and/or perceive higher chances of finding a new one inside or outside the current organization. In the following paragraphs we delineate the hypothesized longitudinal mediator model first by providing the theoretical underpinnings for the effects from PC dimensions to occupational self-efficacy, followed by the arguments for the effect from occupational self-efficacy to job insecurity and perceived internal/external employability.

- *PC dimensions as antecedents of occupational self-efficacy*

Self-efficacy beliefs have already been categorized as a resource within the COR theory (e.g., Holmgreen *et al.*, 2017). In this regard, occupational self-efficacy may be valuable to a large group of employees because it furnishes them with feelings of competence and resilience in adverse circumstances. In addition, according to SCT, self-efficacy beliefs facilitate the attainment of career-related goals, such as promotion and pay raise (Bandura, 1994). In positioning PC dimensions as antecedents of occupational self-efficacy we depart from the COR assumptions which state that employees must invest resources in order to gain resources which makes those who possess more resources more capable of resource gain (Hobfoll *et al*.,

2018). Accordingly, we postulate that employees with greater access to work environmental resources may be more able to build on their self-efficacy beliefs, as delineated along three sources of self-efficacy beliefs in SCT: enactive mastery (i.e., repeated performance success), vicarious experience (i.e., modeling by effective models) and verbal persuasion (i.e., realistic encouragement of performance) (Bandura, 1997).

In particular, job challenge may facilitate the accumulation of mastery experiences, a mechanism that is considered the most influential source of self-efficacy (Bandura, 1994). As outlined in both Job Characteristics Theory (Hackman & Oldham, 1976) and the Job Demands-Resources (JD-R) model (Bakker & Demerouti, 2007), job characteristics subsumed by this PC factor (i.e., job challenge and variety, job importance and job autonomy) have a motivational potential that stimulates the willingness of employees to invest effort and stay committed to meeting work-related goals. As a result, these characteristics increase the likelihood of successful task completion and goal attainment (Bakker & Demerouti, 2007). Because repeated performance success might more readily occur when employees perceive many opportunities to autonomously perform challenging and important tasks, we hypothesize that job challenge will have a positive effect on occupational self-efficacy. This line of reasoning has been empirically substantiated by studies reporting positive correlations between self-efficacy beliefs and variables that conceptually correspond to job autonomy (e.g., Parker, 1998), job challenge (e.g., Schaubroeck, Jones, & Xie, 2001) and job importance (e.g., Jex & Bliese, 1999).

A similar line of reasoning may be applied to an examination of the effect from role harmony to occupational self-efficacy. Namely, mastery experiences might more readily accumulate when employees are clear about and congruent with their assignments. In this vein, role clarity has been framed as a resource that fosters the achievement of work goals (Bakker & Demerouti, 2007). Consistent with this assumption, Jex, Bliese, Buzzell and Priemau (2001) found a positive relationship between self-efficacy and role clarity.

Leader support may also facilitate mastery experiences, where repeated performance success may more readily occur when employees perceive that their leaders encourage good performance and are receptive to their opinions and ideas. Additionally, leaders may serve as effective models and a source of verbal persuasion. Bandura (2009) argued that empowering leadership represents one of the ways an organization might influence employee's self-efficacy beliefs system. Indirect empirical support for this argument was provided by Schyns

and von Collani (2002), who demonstrated a positive relationship between occupational self-efficacy and leader-member exchange.

Finally, cooperation among co-workers may be conducive to mastery experiences, where performance success may be facilitated by co-workers who provide work-related support (e.g., offer help and share knowledge). As with leaders, co-workers may also use verbal persuasion to encourage each other's performance and serve as effective models, thus contributing to one's self-efficacy beliefs (Schyns & von Collani, 2002). In line with this reasoning, Xanthopoulou, Bakker, Demerouti and Schaufeli (2007) found a positive relationship between co-worker support and general self-efficacy.

- *Occupational self-efficacy as antecedent of job insecurity and perceived internal/external employability*

Consistent with COR theory principles, we further hypothesize that occupational self-efficacy will reduce job insecurity. This notion is complemented by the insights from SCT which enables us to make more specific predictions related to the mechanisms by which employees' self-efficacy beliefs influence their behavior, thoughts and emotions (Bandura, 1994). In particular, we depart from the idea that employees who possess more resources in terms of high self-efficacy will feel more able to protect their current job (Hobfoll, 2001). This idea coincides with the idea of protective potential of resources-rich environments (Holmgreen *et al.*, 2017): like the PC dimensions, occupational self-efficacy is assumed to function as a resource that predicts the level to which employees are able to counteract the threat of potential job loss. However, in contrast to the PC dimensions, we regard occupational self-efficacy as a more proximal, internal resource that is to a certain extent dependent on work environmental resources (see above). In particular, we suggest that, of all the available resources tied to employees, occupational self-efficacy may have a particularly pronounced role in shaping job insecurity perceptions. First, as already stated and advocated by SCT, self-efficacy beliefs influence the outcomes that people anticipate (Bandura, 2009). As such, employees who are convinced of their ability to perform well in a job may perceive a lower threat of losing that job. After all, those with high occupational self-efficacy will exhibit better job performance (König, Debus, Häusler, Lendenmann, & Kleinmann, 2010). As a result, these employees will be more able to secure their positions because employers are less likely to dismiss high performers. Second, occupational self-efficacy may reduce job insecurity even when job insecurity arises from external, uncontrollable factors (e.g., economic crisis). In such circumstances, self-efficacy beliefs might shape the manner in which employees interpret ambivalent information and situations. Namely, those with strong

beliefs in their ability to successfully master various job-related challenges might also believe that they will successfully master a job insecure situation, by either keeping the present job against all odds or finding a new one (De Cuyper *et al.*, 2012a). Conceptualizing occupational self-efficacy as a job insecurity antecedent represents an alternative to the existing studies that mainly examined the moderating role of self-efficacy beliefs in the relationship between job insecurity and various outcomes. For example, König *et al.* (2010) argued that occupational self-efficacy might moderate the relationship between job insecurity and job performance, but found no empirical support for this assumption. Similarly, Schreurs, Van Emmerik, Notelaers and De Witte (2010) found non-significant interaction effects of self-efficacy and job insecurity on health-related outcomes. However, both studies did find a negative relationship between occupational self-efficacy and job insecurity, a finding that is consistent with the idea of occupational self-efficacy as antecedent of job insecurity.

We also assume that occupational self-efficacy may enhance perceived internal and perceived external employability. As with job insecurity, we ground this assumptions on the premises of COR theory. However, the path from occupational self-efficacy to perceived internal/external employability includes gains as employees with greater confidence in their abilities to successfully perform a job may in result be more able to find a new job, either within the current or another organization (Hobfoll *et al.*, 2018). As already noted, this assumption also coincides with Bandura's notion on self-efficacy beliefs and their influence on outcomes that people anticipate: those with strong beliefs in their abilities to perform well in a job may perceive a higher probability of finding a new job if necessary, either within the current or in some other organization (cf. Bandura, 2009). Indeed, employees with stronger beliefs in their abilities to perform well tend to have better job performance. As a result, they may present a more desirable candidate for a new job (position) as future employers prefer candidates with more success experiences (e.g., promotions and positive reference letters) (Philippaers *et al.*, 2016). Finally, the idea that occupational self-efficacy enhance perceived employability also coincides with the assumptions of the employability process model. As such, it encompasses a perception of a wide range of individuals' knowledge, skills and abilities (i.e., movement capital) that promote his/her perceived employment opportunities (Forrier *et al.*, 2009; Van der Heijde & Van der Heijden, 2006; Vanhercke *et al.*, 2014). Although, to the best of our knowledge, none of the existing studies examined occupational self-efficacy in relation to perceived internal/external employability, the indirect and partial empirical support for our reasoning may be found in the study by Schyns *et al.* (2007). These authors found that occupational self-efficacy positively predicted preparedness for job change

among a sample of Dutch, but not among a sample of German employees. However, occupational self-efficacy did not predict employees' turnover intention in both samples. Furthermore, in contrast to our predictions, Berntson, Näswall and Sverke (2008) found that perceived employability predicted subsequent self-efficacy, not the other way around. However, a notable difference between Berntson *et al.*'s (2008) study and ours is that these authors examined generalized self-efficacy that also concerns other domains in person's life. Accordingly, while one's perception of employment possibilities may enhance one's self-efficacy beliefs in various life domains, we suggest that the opposite direction is more plausible in case of domain-specific self-efficacy: positive evaluations of one's possibility to find a new job may more likely result from one's positive evaluations of his/her abilities to perform a job, not the other way around.

- *The hypothesized indirect effects via occupational self-efficacy*

To summarize, the pattern of assumptions presented here forms a basis for a mediation model that specifies occupational self-efficacy as the explaining mechanism underlying the effects from the PC dimensions to job insecurity and perceived internal/external employability. The hypothesized indirect effects depart from the extension of previously described COR assumptions according to which employees with greater resources are less vulnerable to resource loss and more capable of resources gain. This extension states that the initial resource gain begets further recourse gain (Hobfoll, 2001). Aligning with this theoretical assumption, we hypothesize that the initial gain in self-efficacy beliefs resulting from work environmental resources may lead to further resource gain, either in terms of higher job security, or in terms of higher perceived internal/external employability. Although we are not aware of studies that examined this indirect effect on job insecurity, the already mentioned study by van Harten *et al.* (2016) demonstrated that employees' self-perceived up-to-date expertise (as a conceptual proxy of occupational self-efficacy) mediated the effects from job autonomy and task variety to perceived employment opportunities. We should also note that, in line with COR principles, we assume that work environmental resources may be conducive for the development of additional resilience-based constructs (cf. Xanthopoulou *et al.*, 2007), such as organization-based self-esteem (Pierce & Gardner, 2004) and optimism (Scheier, Carver, & Bridges, 1994) that were not included in this PhD. These constructs, in turn, may reduce job insecurity or enhance perceived internal/external employability (Kirves, Kinnunen, & De Cuyper, 2014a). Accordingly, we hypothesize a partial mediation. The research model representing hypothesized indirect effects from PC dimensions to job insecurity and perceived internal/external employability via occupational self-efficacy is shown in Figure 2.

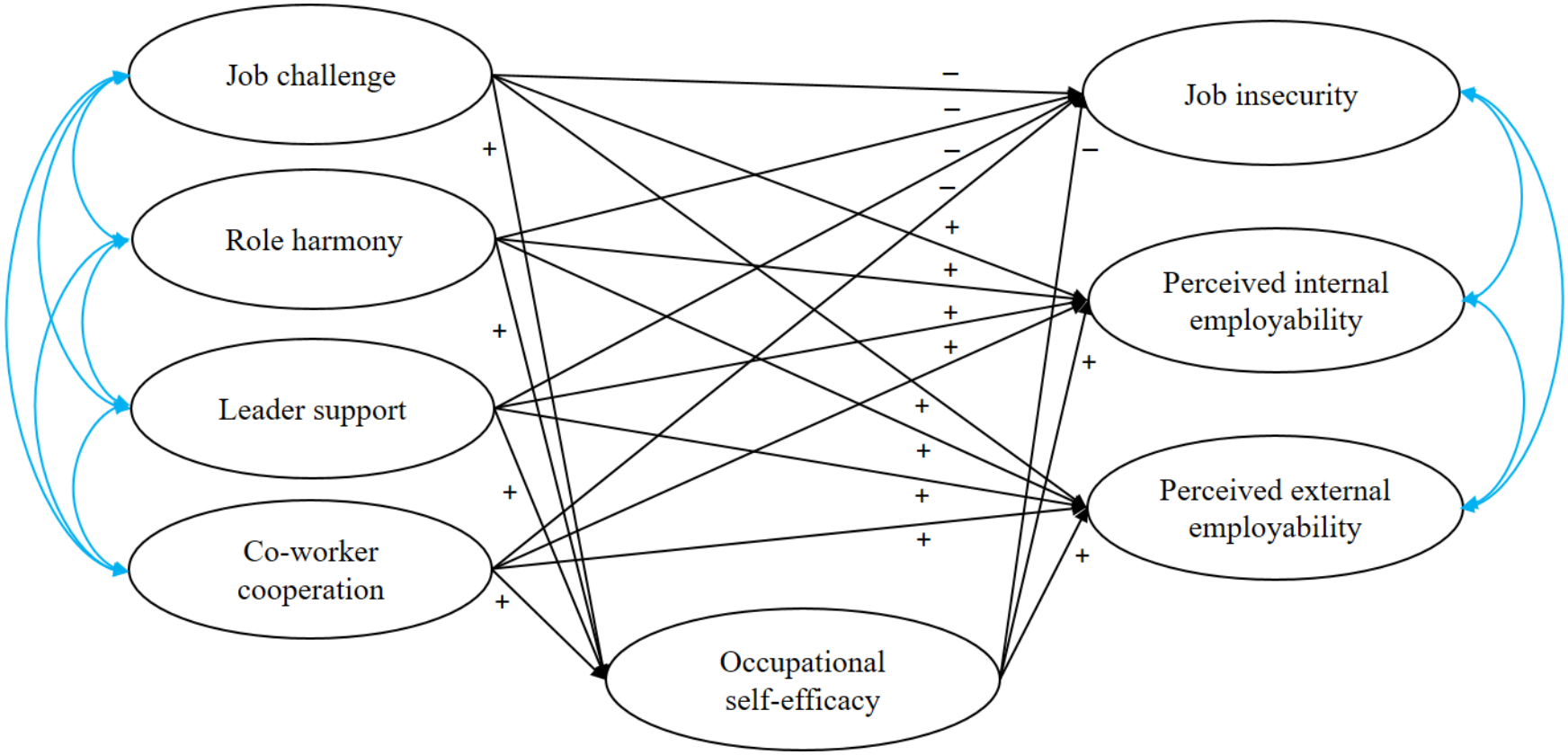

Figure 2. Hypothesized research model corresponding to the effects from PC dimensions to job insecurity and perceived internal/external employability via occupational self-efficacy (partial mediation)

In line with the proposed research model (Figure 2), we set the following hypotheses:

Hypothesis 1. Job challenge (H_{1a}), role harmony (H_{1b}), leader support (H_{1c}) and co-worker cooperation (H_{1d}) have positive cross-lagged effects on occupational self-efficacy.

Hypothesis 2. Occupational self-efficacy has a negative cross-lagged effect on job insecurity (H_{2a}), and a positive cross-lagged effect on perceived internal employability (H_{2b}) and perceived external employability (H_{2c}).

Hypotheses 3 and 4. Occupational self-efficacy partially mediates the relationship between job challenge and, job insecurity (H_{3a}), perceived internal employability (H_{3b}) and perceived external employability (H_{3c}). In addition to hypothesized indirect effects, job challenge has a negative direct cross-lagged effect on job insecurity (H_{4a}) and a positive direct cross-lagged effect on perceived internal employability (H_{4b}) and perceived external employability (H_{4c}).

Hypotheses 5 and 6. Occupational self-efficacy partially mediates the relationship between role harmony and, job insecurity (H_{5a}), perceived internal employability (H_{5b}) and perceived external employability (H_{5c}). In addition to hypothesized indirect effects, role harmony has a negative direct cross-lagged effect on job insecurity (H_{6a}), and a positive direct cross-lagged effect on perceived internal employability (H_{6b}) and perceived external employability (H_{6c}).

Hypotheses 7 and 8. Occupational self-efficacy partially mediates the relationship between leader support and, job insecurity (H_{7a}), perceived internal employability (H_{7b}) and perceived external employability (H_{7c}). In addition to hypothesized indirect effects, leader support has a negative direct cross-lagged effect on job insecurity (H_{8a}), and a positive direct cross-lagged effect on perceived internal employability (H_{8b}) and perceived external employability (H_{8c}).

Hypotheses 9 and 10. Occupational self-efficacy partially mediates the relationship between co-worker cooperation and, job insecurity (H_{9a}), perceived internal employability (H_{9b}) and perceived external employability (H_{9c}). In addition to hypothesized indirect effects, co-worker cooperation has a negative direct cross-lagged effect on job insecurity (H_{10a}), and a positive direct cross-lagged effect on perceived internal employability (H_{10b}) and perceived external employability (H_{10c}).

Psychological climate dimensions moderating the effects from job insecurity and perceived internal/external employability to employees' well-being: the mediating role of perceived control

The first set of hypotheses in this PhD described above commonly departs from an assumption that work environmental resources may influence job insecurity and perceived internal/external employability across time. In contrast, the second set of hypotheses places the focus on the effects of work environmental resources that are immediately available to employees in their environment. More specifically, in the following paragraphs we further delineate the assumption that work environmental resources that are already available to employees (i.e., PC dimensions) may buffer the longitudinal negative effects from job insecurity and amplify the longitudinal positive effects from perceived internal/external employability to employees' well-being. These effects therefore correspond to the idea of longitudinal moderation. After that, we develop specific hypotheses corresponding to the proposed research model presented in Figure 1 that enable us to go one step further and account for the potential mechanism underlying suggested moderation effects – an idea that corresponds to mediated moderation. In general, when interested in mediated moderation, researcher is aiming to explain particular interaction effect (Fairchild & MacKinnon, 2009). Framed in a more technical terms, one needs to demonstrate the causal chain where (i) the effect from independent variable to a mediator is conditional upon a particular moderator and (ii) mediator, in turn, affects the dependent variable. Accordingly, as in any mediation phenomenon, mediated moderation connotes that interaction effect (between independent variable and a moderator) predicts a mediator which, in turn predicts the outcome (Hayes, 2013). Following this reasoning, we aim to explain how (i.e., through which mechanism) PC dimensions moderate the longitudinal effects from job insecurity and perceived internal/external employability to employees' well-being (if so). Regarding the outcome variables, we focus on life satisfaction and mental health complaints, two indicators of employees' general well-being that have implications over and beyond one's working life (cf. Berwick *et al*., 1991; Pavot & Diener, 2008).

Prior to elaborating the moderating effects of the PC dimensions on the effects from job insecurity and perceived internal/external employability to employees' well-being, in the paragraphs that follow, we elaborate main longitudinal effects from each PC dimension, job

insecurity and perceived internal/external employability to life satisfaction and mental health complaints[3].

PC dimensions as antecedents of employees' well-being

Based on the COR theory, we assume that employees with greater access to resources in their work environment may more easily acquire new resources in terms of well-being (Hobfoll, 2001). First, job challenge may enhance employees' personal growth and development by stimulating workplace learning (Bakker & Demerouti, 2007). In addition, it prompts one's freedom and independence in choosing the content, methods and time frame to carry out work (Hackman & Oldham, 1975). As a result, this PC dimension may facilitate the fulfillment of basic psychological needs (i.e., need for competence and autonomy) and foster one's feeling of being able to control the environment and achieve desired outcomes. In line with these assumptions, the existing studies demonstrate that variables that conceptually correspond to job challenge (e.g., job variety, job identity, job autonomy) positively relate to employees' mental health (e.g., Bond & Bunce, 2003; Kelloway & Barling, 1991). Second, role harmony may foster the successful accomplishment of work assignments and responsibilities, as well as resulting in feelings of mastery and control. For example, employees who feel that they have clear guidance about expected job-related behaviors tend to more successfully conduct core work assignments, as well as more easily adapt to changes in these tasks (Griffin, Neal, & Parker, 2007). As such, Lang, Thomas, Bliese and Adler (2007) demonstrated the negative relationship between role clarity and psychological strain. Furthermore, the existing literature suggests that other people at work, such as one's leader and co-workers, can substantially affect how one feels about him/herself (e.g., Skakon, Nielsen, Borg & Guzman, 2010; van Dierendonck, Haynes, Borrill, & Stride, 2004). Accordingly, employees who perceive that their leaders support their work, trust them and appreciate their contribution, may feel more satisfied with their lives and experience better mental health. This assumption has found empirical support in abundant studies (e.g., van Dierendonck *et al*., 2004; Thompson & Prottas, 2005). In this regard, leader support may be conducive for a sense of personal accomplishment, feelings of mastery and control, as well as fulfillment of basic psychological needs (i.e., need for competence and relatedness). Finally, co-worker cooperation may enhance employees' general well-being through the same mechanisms as leader support: supportive and friendly co-workers facilitate employees' work accomplishments and enhance

[3] Note that these effects are not in the main focus of this PhD. However, we included them in our research model guided by the theoretical arguments derived from COR theory and existing empirical evidence.

the feeling that one is connected to and cared for by others. Empirical studies provide support for this assumption (e.g., Dormann & Zapf, 1999). In all, we suggest that each of the four PC dimensions will positively affect employees' life satisfaction and negatively mental health complaints.

Job insecurity and perceived internal/external employability as antecedents of employees' well-being

Additionally, we also expect main longitudinal effects from job insecurity on life satisfaction and mental health complaints because, as already stated, perceiving that one's valuable resource is threatened with loss leads to strain (Hobfoll, 2001). As such, job insecurity frustrates employees' basic psychological needs (i.e., need for autonomy, relatedness and competence; Ryan & Deci, 2000), induces feelings of powerlessness over the job insecure situation and creates an impression that one's loyalty to the organization has not been properly reciprocated by providing one a secure employment (De Cuyper & De Witte, 2006; Vander Elst *et al*., 2014b; Vander Elst, Van den Broeck, De Witte, & De Cuyper, 2012). This, in turn, leads to impaired well-being. In line with these theoretical arguments, the negative relationship between job insecurity and employees' life satisfaction and mental health has been empirically supported in numerous studies (e.g., De Cuyper & De Witte, 2007; De Witte *et al*., 2015; Tomas & Maslić Seršić, 2015). Accordingly, we suggest that job insecurity decreases life satisfaction and increases mental health complaints across time.

Finally, perceived internal and perceived external employability may also affect employee's well-being. However, in contrast to job insecurity, both should be beneficial, i.e., promote life satisfaction and mental health across time as individuals with more resources (i.e., perceived employability) are more capable of gaining new resources (i.e., well-being) (Hobfoll, 2001). As such, employees who regard themselves as more employable, either on the internal or external labor market, may feel more in control over their working life, or career in general (De Cuyper *et al*., 2008; De Cuyper *et al*., 2011b). In addition, as perceived internal/external employability imply more alternatives and choices on the labor market, highly employable employees may believe that they possess the power to change their current job situation if considered unsatisfactory (e.g., due to poor working conditions) (Berntson & Marklund, 2007). In all, these employees may be more satisfied with their life and experience less mental health complaints. In line with these assumptions, De Cuyper *et al*. (2008) and De Cuyper *et al.* (2011b) reported a significant, albeit weak association between perceived external employability and life satisfaction. Furthermore, longitudinal evidence was found in a study by Vanhercke *et al.* (2015) who demonstrated that perceived employability increased

employees' life satisfaction, as well in a study by Berntson and Marklund (2007) who demonstrated that perceived employability increased mental health across time. In contrast to these studies, however, Silla *et al*. (2009) reported non-significant associations between perceived employability and both life satisfaction and psychological distress.

Psychological climate dimensions as buffers against the negative effects from job insecurity to employees' well-being

COR theory suggests that individuals who have more resources to begin with will less likely experience psychological distress in response to a particular stressor (Holmgreen *et al*., 2017)[4]. In other words, in a stressful situation one must have the access to resources in his/her environment to offset or mitigate losses of other resources, such as well-being. Aligning with this COR assumption, we suggest that job insecurity will have less deleterious effects on employees' life satisfaction and mental health for those employees who have a greater pool of available resources they can immediately call on in their work environments. More specifically, we suggest that job challenge, role harmony, leader support and co-worker cooperation attenuate (buffer) the negative effect of job insecurity on life satisfaction and the positive effect of job insecurity on mental health complaints. This assumption also coincides with the JD-R model (Bakker & Demerouti, 2007) and the stress-buffering hypothesis (Cooper, Dewe &, O'Driscoll, 2001), according to which high level of job resources may buffer the detrimental effects of job demands on employees' well-being.

As such, employees who are given more opportunities to autonomously perform challenging and important tasks may be more replenished with other resilience-related resources (e.g., self-efficacy beliefs) which induce feelings of mastery over a job insecure situation and in turn, reduce the negative effects of job insecurity. As job challenge also implies a higher level of job autonomy, employees who are given more authority over their jobs (e.g., over content, timing and methods) may be better able to minimize exposure to work stressors and regulate their energy while working (Jenkins, 1991). This may prove particularly beneficial for employees' well-being in times of job insecurity as this stressor positively relates to job exhaustion and negatively to vigor at work (Kinnunen, Mauno, & Siltaloppi, 2010). In line with these assumptions, Barling and Kelloway (1996) and Schreurs *et al.* (2010) demonstrated that job control buffers the negative relationship between job insecurity, and

[4] This assumption follows from the previously described assumption according to which (i) one must invest resources in order to protect oneself against resource loss, which in turn (ii) makes a person with more resources less vulnerable to resource loss (Hobfoll *et al.*, 2018).

psychological well-being and physical health. Furthermore, Cheng, Mauno and Lee (2014) found that job control buffered longitudinal negative effects of job insecurity on vigor.

Like job challenge, role harmony may also facilitate employees' coping with job insecurity. As such, employees who are clear about and consistent with their work assignments may more easily cope with the "extra burden" imposed by a job insecure situation as these role characteristics facilitate accomplishments of work assignments and increase the feelings of control over one's work environment (Lang *et al.*, 2007). For example, role clarity may prove useful in counteracting the negative effects of vagueness inherent to a job insecure situation. In this regard, employees who feel that they might lose their job in the near future are often confronted with a lot of uncertainty and ambivalence in their work environments (e.g., unclear job performance criteria). Therefore, having clear guidance about expected responsibilities may increase employees' understanding of how to behave in a job threatened situation (e.g., how to best prioritize job assignments and meet job expectations). Another example relates to role congruence, i.e., its opposite, role conflict. Being compelled to address conflicting demands in one's job usually consumes employees' cognitive capacities. Accordingly, we suggest that role conflict may hamper employees coping with a job insecure situation as the simultaneous presence of these two stressors may exceed employees' cognitive capacities and adaptive responses (cf. Fried, Ben-David, Tiegs, Avital, & Yeverechyahu, 1998) and may in turn lead to lowered life satisfaction and mental health. In line with these assumption, Inoue, Kawakami, Eguchi and Tsutsumi (2018) found that job insecurity had a stronger positive effect on psychological distress among permanently employed male employees who perceived high (vs. low) role ambiguity. This finding was, however, not replicated among permanently employed female employees. Indirect empirical support is also provided by Lang *et al*. (2007) who found a buffering effect of role clarity against the negative effect of job demands (conceptualized as work overload) on employees' psychological and physical strain.

Leader support may also counter the negative effects of job insecurity on employees' life satisfaction and mental health. As such, facilitation of employees' work accomplishments may represent instrumental support that helps employees cope with the job insecure situation (Cooper *et al.*, 2001). For example, employees whose leaders encourage them to give their best efforts and show them how to improve their performance may feel more in control over their threatened job situation, and as a result, less susceptible to the impact of job insecurity. In addition, leader support, when provided in the form of participative decision making, may enhance employees' understanding of and influence over organizational decisions making

them feel less affected by job insecurity (Probst, 2005). Existing studies provide support for this line of reasoning. For example, Lim (1997) found that the positive association between job insecurity and both job dissatisfaction and non-compliant job behaviors was stronger for employees who perceived a lower level of leader support. In addition, Probst (2005) demonstrated that job insecurity negatively affected employees work, supervisor and co-worker satisfaction and positively affected employees' work withdrawal only among employees who perceive a low level of participative decision making.

Finally, perceiving cooperative and friendly relationships may help employees to cope with anxiety inherent to a job insecure situation. As such, supportive relationships at work are likely to enhance feelings of psychological safety, belonging and solidarity which are usually jeopardized by job insecurity. Furthermore, co-worker cooperation may enhance employees' functioning at work. In this way, cooperation may be conceived as instrumental support that implies direct and practical help (e.g., providing one with relevant information on how to solve a particular problem). Employees who perceive such support may feel more in control, i.e., perceive their job situation as more manageable. In all, co-worker cooperation may buffer the negative effect of job insecurity on life satisfaction and the positive effect of job insecurity on mental health complaints for at least two reasons. One of them refers to enhanced emotional functioning and the other to more productive and efficient functioning despite the perceived threat of potential job loss. In light of these arguments, Lim (1997) demonstrated that high work colleague support buffered the positive relationships between job insecurity and both job dissatisfaction and non-compliant job behaviors. In contrast, Dekker and Schaufeli (1995) did not confirm the hypothesis that support from colleagues buffers the positive relationship between job insecurity and psychological stress, burnout and withdrawal during organizational change. However, the authors argued that the non-significant finding might be attributed to the small sample size and resulting low power of statistical tests.

Psychological climate dimensions as amplifiers of the positive effects from perceived internal/external employability to employees' well-being

Furthermore, we suggest that resourceful work environments may prove advantageous not only when individuals' resources are threatened with loses, as described in the previous paragraphs, but also when individuals already possess relevant personal resources – perceived internal and perceived external employability. In this regard, COR theory represents a particularly useful theoretical framework as it articulates that individuals, when not compelled to cope with resources losses or threats, tend to proactively acquire and maintain their resource reservoirs (cf. Hobfoll, 2001). As such, resource acquisition, maintenance and

fostering represent basic human motivational goals, but these do not come without effort and investment of other resources. As a result, employees who have a better starting point with resources they already possess (either within themselves or in their environment) should also be better able to invest those for gaining new resources in the future (Hobfoll, 2001). We already used these assumptions to derive hypotheses about e.g. the effects from PC dimensions to occupational self-efficacy. Here we use them to extend the assumption about the positive association between perceived internal/external employability and employees' well-being by also accounting for the fact that employees differ in terms of the availability of work environmental resources on which they can immediately call on in their surroundings. In this regard, Hobfoll (2011) argued that organizations can (and should) create what he called "resource-enriching organizational ecologies" (p. 118) – environmental conditions that support employees to maintain and enrich the existing resources and acquire new ones. In line with these COR assumptions, we suggest that employees with a higher level of perceived internal/external employability will more likely acquire new resources in terms of well-being if they perceive (i.e., have the access to) higher levels of job challenge, role harmony, leader support and co-worker cooperation in their proximate work environment.

As such, perceiving that one is highly employable on the internal or external labor market may more likely result in increased life satisfaction and mental health if employees perceive more chances to autonomously perform challenging and important work assignments. As previously stated, perceived employability is built on many investments made by an employee throughout his/her career (i.e., education, training, social networks) (Vanhercke *et al.*, 2015). Therefore, highly employable individuals may perceive the availability of job resources as a fair compensation for everything they have to offer to their organization (De Cuyper *et al.*, 2011a). This in turn may have many positive implications for employees' well-being in the long run. In addition, the more access highly employable individuals have to interesting, relevant and autonomous work assignments, the more they may be able to use those to additionally promote their position within or outside their organization. For example, an employable worker who is given a chance to lead a challenging and important project may be more able to use this opportunity to increase his/her reputation in the current organization, but also vis-à-vis other employers. This is because perceived employability implies that one is equipped with a wide range of resources, such as knowledge, skills, and social networks, all of which may become more advantageous if one is given a chance to use and demonstrate them. In all, these opportunities may facilitate the attainment of additional control over one's working life and, in turn, lead to higher well-

being. The indirect empirical support for this reasoning is provided in a longitudinal study by Lu, Sun and Du (2016) who demonstrated that perceived employability negatively predicted subsequent emotional exhaustion only when employees perceived high career opportunities within their organization.

Furthermore, role harmony may also amplify the positive effect from perceived internal/external employability to employees' well-being. If we take into consideration that both notions of perceived employability are to a substantial extent built on employees' human capital (Forrier *et al.*, 2009), then harmonious work roles may facilitate the expression of employee' skills, knowledge, experience, etc. For example, a person who possesses a particular knowledge that is highly sought after in one's industry, may more easily use and demonstrate this knowledge in performing the job if (s)he is clear about his/her tasks and responsibilities and personally agrees with them. This in turn may promote feelings of mastery over one's working situation and working life in general, leading to enhanced well-being. To the best of our knowledge, we are unaware of studies examining the moderating effects of work role characteristics on the effects from perceived internal/external employability to employees' well-being.

We further suggest that perceived internal/external employability may more likely result with increased well-being when employees perceive higher levels of leader support. As with job challenge, we see two plausible explanations for this assumption. First, leader support may be interpreted as a fair reward and balance for the input of employable individuals resulting in higher levels of life satisfaction and mental health (De Cuyper *et al*., 2011a). And second, this PC dimension may represent a supporting environmental condition under which individuals more easily express personal resources that entail their perceived employability. For example, highly employable individuals may more willingly invest their knowledge into outstanding performance if they perceive that their leader encourages and facilitates their work-related efforts. These in turn, may enhance feelings of mastery over one's working life and, in a more distal future, lead to higher life satisfaction and mental health. To the best of our knowledge, we are not aware of studies that accounted for the boundary conditions of employees' leader support when examining the effect from perceived internal/external employability to employees' well-being.

Finally, we suggest that perceived internal/external employability may more easily enhance employees' well-being when one is surrounded by co-operative and supportive co-workers. In this regard, we again assume that this PC dimension may facilitate the expression

of employees' human capital leading to enhanced feelings of mastery over one's working life and increased well-being. For example, an experienced and knowledgeable employee may more easily utilize and demonstrate his/her competences in solving a difficult work assignment if (s)he receives a support from other co-workers. As with role harmony and leader support, we are not aware of studies examining these theoretical assumptions.

The mediating role of perceived control

The arguments corresponding to the PC dimensions operating as buffers against the negative effects of job insecurity and amplifiers of the positive effects of perceived internal/external employability on employees' well-being indicate that these might be explained by several mechanisms. One of them, common to the effect of each PC dimension, concerns perceived control over the current work situation. Perceived control refers to the appraisal of the extent to which one has the control over his/her current work situation (Vander Elst *et al*., 2014b). It results from employee's evaluation of his/her physical, social, material and psychological resources available to deal with a particular situation (Lazarus & Folkman, 1984; Vander Elst *et al.*, 2014b). As such, perceived control can be distinguished from occupational self-efficacy: while occupational self-efficacy represents a more stable individual characteristic (see above), perceived control pertains to the employee's appraisal of the situation that might partially depend on employees' individual characteristics (cf. Greenberger & Strasser, 1986). For that reason, occupational self-efficacy is positioned as antecedent, and perceived control as an outcome of job insecurity and perceived internal/external employability in our research model (see Figure 1). Although to our knowledge not explicitly tested, perceived control has already been advocated in the literature as the mechanism responsible for the beneficial moderating effects of work environmental resources (e.g., Inoue *et al.*, 2018; Probst, 2005; Vander Elst, 2013). Accordingly, in this PhD we examine the assumption that perceived control operates as the underlying mechanism of the hypothesized interaction effects. More specifically, we suggest that the interaction effects between PC dimensions and, job insecurity and perceived internal/external employability on life satisfaction and mental health complaints may be transmitted through perceived control. As previously explained, this assumption corresponds to the idea of mediated moderation (Edwards & Lambert, 2007), and delineates the chain where PC dimensions moderate the effects from job insecurity and perceived internal/external employability to perceived control which, in turn, affects life satisfaction and mental health complaints.

Prior to developing hypotheses that correspond to mediated moderation, in the following paragraphs we first elaborate hypotheses referring to main effects from PC dimensions, job insecurity and perceived internal/external employability to perceived control.[5] Next, we develop hypotheses that form a basis for the hypothesized mediated moderation effects, namely: (i) the hypothesized buffering effects of each PC dimension against the negative effect from job insecurity to perceived control; (ii) the hypothesized amplifying effects of each PC dimension of the positive effects from perceived internal/external employability to perceived control; and (iii) the hypothesized effects from perceived control to life satisfaction and mental health complaints (cf. Edwards & Lambert, 2007).

- *PC dimensions as antecedents of perceived control*

First, we hypothesize that each PC dimension has a main positive effect on perceived control across time: employees who have a greater pool of resources in their proximate work environment may be more capable of establishing control over their current work situation (Hobfoll *et al*., 2018). As such, perceived control has already been framed as a COR resource (Vander Elst *et al*., 2014b). Indeed, Hobfoll *et al.* (2003) noted that personal resources relate to the individual's sense of his/her ability to control and impact the environment. In addition, desire for control has been put forward as a universal motivational force that drives people to act in accordance to possess or regain control by various means (Bordia, Hunt, Paulsen, Tourish, & DiFonzo, 2004). Therefore, departing from COR theory and conceptual underpinnings of the PC dimensions and perceived control, we hypothesize that job challenge may enhance perceived control by fostering employees' knowledge and skillfulness that in turn enable one to establish more control in his/her organization. In addition, this PC dimension may be interpreted as a signal that one is a valuable member of an organization, and as such, more capable of controlling his/her work situation. Furthermore, role harmony may facilitate accomplishments of one's work assignments and job responsibilities, which, in turn, may foster perceptions of control. Leader support may also facilitate attainment of work-related goals, serve as a positive indicator of one's value to the organization, as well as provide employees with chances to influence some of the organizational decisions. Finally, co-worker cooperation may, as role harmony and leader support, facilitate employees' successful performance of work assignments and responsibilities, as well as promote feelings of psychological safety. In turn, these features of leader support and co-worker cooperation

[5] Note that these effects are not a prerequisite to test mediated moderation, and therefore not in the main focus of this PhD. However, we included them in our research model guided by the theoretical arguments of COR theory and existing empirical evidence.

may positively influence employees' perception of control over the current work situation. Indirect empirical support for these assumptions is provided in several studies. For example, Thompson and Prottas (2005) found that perceived control over important things in one's life positively related to job autonomy, supervisor and co-worker support. Ashford *et al*. (1989) demonstrated negative associations between perceived control over one's work situation and both role ambiguity and role conflict.

- *Job insecurity and perceived internal/external employability as antecedents of perceived control*

Second, we hypothesize that job insecurity and perceived internal/external employability may affect employee's perception of control over the current work situation across time: while job insecurity is likely to reduce it (Vander Elst *et al.*, 2014b), perceived employability, both internal and external, are likely to enhance it (Philippaers, 2017). In particular, COR theory states that initial loss of resources triggers future loss (Hobfoll, 2001). As experiencing job insecurity implies the loss of the feeling that one's employment is safe, it may eventually lead to a feeling that one does not have the control over that stressful situation (Vander Elst *et al*., 2014b). More specifically, job insecurity represents a stressor that is difficult to cope with as it is characterized by a great deal of uncertainty and lack of proper information about what might happen with one's job in the future. As a result, a job insecure employee may develop an impression that either there is not much that (s)he could do in order to keep the job, or even if there is, which coping methods might prove efficient. The negative effect from job insecurity to perceived control has been demonstrated in several studies (e.g., Vander Elst, De Cuyper, & De Witte, 2011; Vander Elst *et al*., 2014b).

In contrast, employees with higher level of perceived internal or perceived external employability may be more capable of gaining new resources in terms of perceived control over one's current work situation (Hobfoll, 2001). This assumption closely relates to the well-established idea in the employability literature according to which perceiving that one has many job alternatives on the internal or external labor is beneficial for employees as it enhances their sense of control over their working lives and career in general (e.g., De Cuyper *et al*., 2011b). Here we extend this idea by hypothesizing that perceived internal/external employability may enhance perceived control over one's current work situation. As such, perceiving many alternatives to a current job position, either within the current organization or at the external labor market, may enhance a feeling that a one is in control over and can affect and change his/her current work situation if necessary (e.g., by finding a new job). Although we are not aware of any study that tested the effect from perceived internal

employability to perceived control, the existing studies do provide empirical support for the hypothesis concerning the positive effect from perceived external employability to perceived control (e.g., Philippaers, 2017).

- *Psychological climate dimensions as buffers of the negative effects from job insecurity to perceived control*

Aligning with COR theory, we suggest that job insecurity will less likely result with a loss of perceived control among employees who work in resource-rich environments (vs. employees who work in resource-poor environment). This might be the case because stressors require coping in the form of resource investment (Holmgreen *et al.*, 2017). Therefore, job insecure employees who have abundant access to resources in their proximate work environment may use those to mitigate further loss of control over their work situation. In contrast, when these resources are insufficient to begin with, job insecurity may be particularly cumbersome and its consequences, in terms of lost feelings of control, more pronounced. Although these theoretical assumptions have been alluded to in several studies (e.g., Inoue *et al.*, 2018), we are unaware of any explicit or indirect empirical verification.

Therefore, according to the theoretical rationale presented above, we first hypothesize that employees who are replenished with opportunities to autonomously perform challenging and important tasks may less likely lose control in response to job insecurity. In line with the idea of resource substitution outlined in COR theory, we suggest that a lost conception about a safe employment may, at least to some extent, be substituted with an impression that one is important and valuable to an organization (cf. Hobfoll, 2001), making him/her feel more in control over the current work situation. Furthermore, job challenge may be directly utilized as a resource that is beneficial for establishing more control over the threatened job situation. For example, job autonomy may enable one to adapt the methods, time frame and content of work assignment to his/her depleted level of energy.

Role harmony may also buffer the negative effect from job insecurity to perceived control. This work environmental resource may, as previously stated, facilitate accomplishments of work assignment and reduce uncertainty at the workplace (Inoue *et al.*, 2018). As such, employees who are better performers may more positively evaluate their abilities to deal with the threatened job situation (cf. Vander Elst *et al.*, 2014b). Role harmony may also enable employees to lose less energy on coping with unclear and conflicting demands and focus more on establishing control over their current job insecure situation.

In line with the arguments related to job challenge and role harmony, leader support may be used as a resource that partially substitutes employee's feeling of job security and

facilitates accomplishments of work assignments, respectively. In particular, employees who perceive that their leaders facilitate their work accomplishments and account for their opinion in the decision making process may feel more valued and important to the organization, as well as more capable of coping with threats inherent to job insecurity. In addition, these employees may indeed have access to more information about what will happen with their job and thereby feel more prepared for future events. More capable, valued and informed employees may, in turn, feel more in control over their threatened job situation.

Finally, co-worker cooperation may also prove beneficial in reducing the negative effects of job insecurity on perceived control. In this regard, employees who perceive that they might lose their job may less likely lose control over their work situation if they are surrounded by co-workers who gladly offer their help, share relevant knowledge and experience, and provide emotional support. As such, co-worker cooperation may be used to offset thwarted safety and predictability in one's work environment.

- *Psychological climate dimensions as amplifiers of the positive effects from perceived internal/external employability to perceived control*

Departing from Hobfoll's (2011) notion on resource engaging ecologies, we further postulate that high levels of job challenge, role harmony, leader support and co-worker cooperation may foster the process of resource acquisition. In this regard, we see PC dimensions as a supporting platform that enables those with higher level of perceived internal/external employability to more easily gain additional resources in terms of perceived control over the current work situation. More specifically, we hypothesize that the effects from perceived internal and perceived external employability to perceived control will be more strongly positive if employees work in a resource-rich environment (vs. a resource-poor environment). Again, as with job insecurity, we are unaware of studies that tested these theoretical assumptions.

Accordingly, we hypothesize that the positive effects from perceived internal/external employability to perceived control may be amplified by the opportunities employees have to autonomously perform challenging and important work assignments. Job challenge may, as previously stated, be utilized to promote one's position at the internal and external labor market. Now we suggest that more employable individuals will be more able to benefit from this advantage. More specifically, we posit that employees with higher perceived internal/external employability may more easily gain control over their work situation if they are given opportunities to use and demonstrate knowledge, skills and other personal resources that represent building blocks of their perceived employability. In this regard, challenging,

autonomous and important work assignments may provide one with possibilities to translate his/her latent potential into visible positive signals on the internal or external labor market (e.g., positive reference letters, cf. Philippaers *et al*., 2016). These may in turn, enhance the employees' sense that they are in control over their work situation.

On a related note, harmonious work roles may also facilitate the usage and manifestation of employees' knowledge, skills, abilities and other personal resources that are reflected in perceived internal/external employability. Therefore, we suggest that employees with higher levels of perceived internal and external employability may more easily acquire control over their work situation when their work roles facilitate the expression of their personal resources. For example, a highly employable individual may more easily exhibit superior job performance if it is clear what superior performance entails. This in turn may enhance feelings of control over his/her work situation.

Third, as job challenge and role harmony, leader support may also represent a supporting work environmental condition under which perceived internal/external employability may more likely result in perceived control. The supporting potential of this PC dimension may be established through leader work facilitation as well as through the acknowledgement of employees' work-related opinions and ideas. Under these conditions, employees with higher internal/external perceived employability may be more able and willing to utilize and demonstrate their work-related competencies. This may additionally promote their advantageous position on the internal and external labor market resulting in higher level of perceived control over their current work situation.

The fourth moderating effect of PC dimensions concerns co-worker cooperation. In this regard, the expression of employees' personal resources encompassed by perceived internal and external employability may be facilitated by co-workers who readily support each other and cooperate well (e.g., offer work-related help, share knowledge and relevant information). As such, highly employable individuals may more easily utilize and demonstrate their competencies when they perceive that they can rely on their co-workers, as well as receive their help and support, if necessary. As a result, they may feel more in control over their current work situation.

- *Perceived control as an antecedent of life satisfaction and mental health complaints*

Following the logic of COR theory, we hypothesize that employees who perceive more control over their work situation will be more capable of gaining additional resources in terms of well-being (Hobfoll *et al.*, 2018). As previously stated, most people are basically motivated to establish and retain control over their environments (Bordia *et al*., 2004). Being in control

implies that one feels capable of effecting a change in a desired direction (e.g., prevent undesirable outcomes and achieve desired ends) (Greenberger & Strasser, 1986). In line with these more general assertions, perceived control over the work situation may be particularly beneficial as employment represents one of the highly valued resources for most individuals (Hobfoll, 2001). Therefore, this aspect of control may promote adaptive responses and optimal functioning in one's work place that, after a certain period of time, leads to higher life satisfaction and better mental health. Accordingly, we hypothesize a positive effect from perceived control to life satisfaction and a negative effect from perceived control to mental health complaints. These hypotheses align with existing studies. For example, Thompson and Prottas (2005) found a positive relationship between perceived control and life satisfaction, whereas Vander Elst *et al* (2011) demonstrated a negative relationship between perceived control and psychological distress.

- *The hypothesized indirect effects via perceived control*

In all, the pattern of presented assumptions indicates that perceived control over the current work situation may represent an explaining mechanism that underlies both main and moderating effects linking PC dimensions, job insecurity, perceived internal/external employability, and employees' well-being. More specifically, we hypothesize partial mediation as, based on theoretical arguments of each respective research field, we might expect that other mechanisms, beside perceived control, underlie particular effects.

First, we hypothesize that perceived control may mediate the effects from each PC dimension to life satisfaction and mental health complaints. In this vein, employees with more resources in their proximate work environment may more easily gain a feeling of being in control over their current work situation. As initial resource gain begets further gain, the enhanced control beliefs may result in increased general well-being (i.e., increased life satisfaction and decreased mental health complaints) (cf. Hobfoll, 2001). The indirect empirical support for these theoretical assumptions is provided by Thompson and Prottas (2005) who found that perceived control over important things in one's life mediated the effects from co-worker support, supervisor support and job autonomy to employees' life satisfaction and stress. We also hypothesize that other mechanisms that were not included in this PhD, such as fulfillment of the need for competence, may additionally explain the effects from each PC dimension to life satisfaction and mental health complaints. Hence, we only hypothesize partial mediation.

Second, we hypothesize that the effects from job insecurity and perceived internal/external employability to life satisfaction and mental health complaints are mediated by perceived control. As such, the loss of job security may initiate a chain of loses leading to a decreased sense of control, and in turn impaired well-being (i.e., decreased life satisfaction and increased mental health complaints) (Hobfoll, 2001). The mediating role of perceived control in the relationship between job insecurity and employees' well-being has been demonstrated in several studies (e.g., Vander Elst *et al.*, 2011; Vander Elst *et al.*, 2014b). However, the job insecurity literature advocates for several other mechanisms that might account for the negative effects of job insecurity on well-being beside perceived control, such as psychological contract breach and the frustration of basic psychological needs (for a more detailed overview, see De Witte *et al.*, 2016; De Witte *et al.*, 2015). Furthermore, we hypothesize that perceived control may mediate the effects from perceived internal/external employability to life satisfaction and mental health complaints. However, in contrast to job insecurity, we suggest that this process outlines a chain of gains: perceived internal and external employability enhance perceived control, which, in turn, leads to enhanced well-being (i.e., increased life satisfaction and decreased mental health complaints) (Hobfoll, 2001). Although we are not aware of studies that explicitly tested the hypothesized indirect effects, the literature in the realm of perceived employability strongly advocates that perceived control over one's career underlies the beneficial effects of perceived employability (e.g., De Cuyper *et al.*, 2008; Kirves *et al.*, 2011). In addition to different notions of perceived control, other constructs, such as perceived power and affective organizational commitment, may also explain the positive effects from perceived internal/external employability to well-being (cf. Philippaers, 2017). Hence, we only hypothesize partial mediation.

Finally, as of primary research interest in this PhD, we hypothesize that perceived control mediates the moderating effects of the PC dimensions on the (i) negative effects from job insecurity to well-being and (ii) positive effects from perceived internal/external employability to well-being. In this regard, we suggest that perceived control over the current work situation represents one of the reasons why the PC dimensions may buffer the negative effects of job insecurity and amplify the positive effects of perceived internal/external employability on employees' well-being. Additionally, accounting for other theoretical perspectives, we suggest that partial mediation is reasonable to expect. As such, the moderating effects of the PC dimensions may be explained by additional mechanisms, such as energy-related constructs (e.g., vigor and emotional exhaustion), fulfillment of basic psychological needs (e.g., need for competence and relatedness) and fairness perceptions. We

believe that the idea of mediated moderation via perceived control represents perhaps the most innovative part of this PhD. Accordingly, we are unaware of studies that have thus far tested these indirect effects. The hypothesized research model corresponding to the hypothesized indirect effects via perceived control is presented on Figure 3.

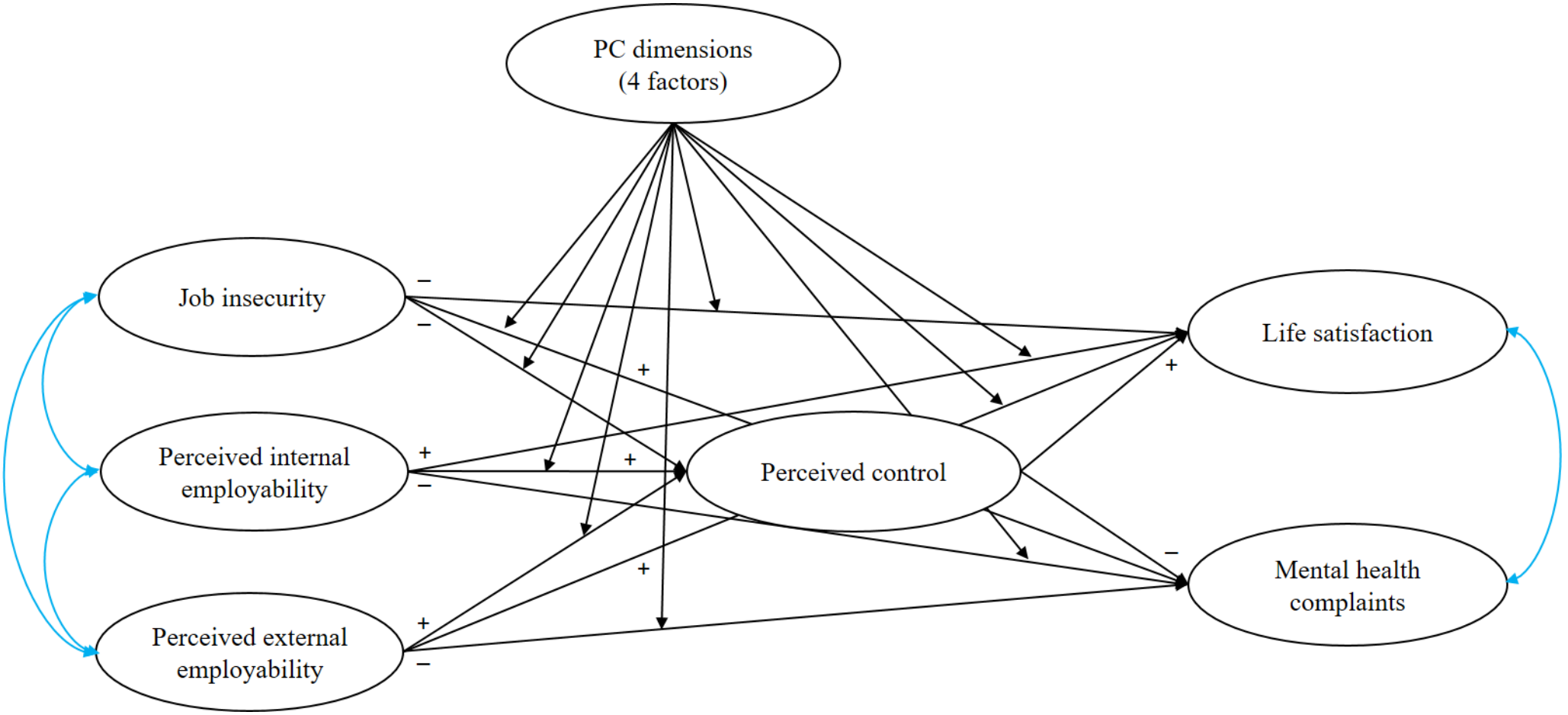

Figure 3. Hypothesized research model encompassing hypothesized indirect effects via perceived control (partial mediation)

Notes. PC dimensions are represented as one oval icon for figure clarity.

In line with the proposed research model (Figure 3), we set the following hypotheses:

Hypothesis 11. Job challenge (H_{11a}), role harmony (H_{11b}), leader support (H_{11c}) and co-worker cooperation (H_{11d}) have a positive cross-lagged effect on perceived control.

Hypothesis 12. Job insecurity (H_{12a}) has a negative cross-lagged effect on perceived control, whereas perceived internal employability (H_{12b}) and perceived external employability (H_{12c}) have a positive cross-lagged effect on perceived control.

Hypothesis 13. Psychological climate dimensions buffer (attenuate) the negative cross-lagged effect from job insecurity to perceived control. In particular, the negative cross-lagged effect from job insecurity to perceived control is weaker under conditions of high (vs. low) levels of perceived job challenge (H_{13a}), role harmony (H_{13b}), leader support (H_{13c}) and co-worker cooperation (H_{13d}).

Hypothesis 14. Psychological climate dimensions amplify (accentuate) the positive cross-lagged effect from perceived internal employability to perceived control. In particular, the positive cross-lagged effect from perceived internal employability to perceived control is stronger under conditions of high (vs. low) levels of perceived job challenge ($_{H14a}$), role harmony (H_{14b}), leader support (H_{14c}) and co-worker cooperation (H_{14d}).

Hypothesis 15. Psychological climate dimensions amplify (accentuate) the positive cross-lagged effect from perceived external employability to perceived control. In particular, the positive cross-lagged effect from perceived external employability to perceived control is stronger under conditions of high (vs. low) levels of perceived job challenge (H_{15a}), role harmony (H_{15b}), leader support (H_{15c}) and co-worker cooperation (H_{15d}).

Hypothesis 16. Perceived control has a positive cross-lagged effect on life satisfaction (H_{16a}) and a negative cross-lagged effect on mental health complaints (H_{16b}).

Hypotheses 17 and 18. Perceived control partially mediates the relationship between job challenge (H_{17a}), role harmony (H_{17b}), leader support (H_{17c}) and co-worker cooperation (H_{17d}) and life satisfaction. In addition to the hypothesized indirect effects, job challenge (H_{18a}), role harmony (H_{18b}), leader support (H_{18c}) and co-worker cooperation (H_{18d}) have positive direct cross-lagged effects on life satisfaction.

Hypotheses 19 and 20. Perceived control partially mediates the relationship between job challenge (H_{19a}), role harmony (H_{19b}), leader support (H_{19c}) and co-worker cooperation (H_{19d}) and mental health complaints. In addition to the hypothesized indirect effects, job challenge (H_{20a}), role harmony (H_{20b}), leader support (H_{20c}) and co-worker cooperation (H_{20d}) have negative direct cross-lagged effects on mental health complaints.

Hypotheses 21 and 22. Perceived control partially mediates the relationship between job insecurity (H_{21a}), perceived internal employability (H_{21b}) and perceived external employability (H_{21c}) and life satisfaction. In addition to the hypothesized indirect effects, job insecurity has a negative direct cross-lagged effect (H_{22a}), whereas perceived internal employability (H_{22b}) and perceived external employability (H_{22c}) have positive direct cross-lagged effects on life satisfaction.

Hypotheses 23 and 24. Perceived control partially mediates the relationship between job insecurity (H_{23a}), perceived internal employability (H_{23b}) and perceived external employability (H_{23c}) and mental health complaints. In addition to the hypothesized indirect effects, job insecurity has a positive direct cross-lagged effect (H_{24a}), whereas perceived internal employability (H_{24b}) and perceived external employability (H_{24c}) have negative direct cross-lagged effects on mental health complaints.

Hypotheses 25 and 26. Perceived control partially mediates the relationships between the interaction terms job challenge × job insecurity (H_{25a}), role harmony × job insecurity (H_{25b}), leader support × job insecurity (H_{25c}) and co-worker cooperation × job insecurity (H_{25d}) and life satisfaction (i.e., mediated moderation). In addition to the hypothesized indirect effects, the interaction terms job challenge × job insecurity, role harmony × job insecurity, leader support × job insecurity and co-worker cooperation × job insecurity have direct cross-lagged effects on life satisfaction. In particular, the psychological climate dimensions buffer (attenuate) the negative cross-lagged effects from job insecurity to life satisfaction: the negative cross-lagged effect from job insecurity to life satisfaction is weaker under conditions of high (vs. low) levels of perceived job challenge (H_{26a}), role harmony (H_{26b}), leader support (H_{26c}) and co-worker cooperation (H_{26d}).

Hypotheses 27 and 28. Perceived control partially mediates the relationship between the interaction terms job challenge × job insecurity (H_{27a}), role harmony × job insecurity (H_{27b}),

leader support × job insecurity (H_{27c}) and co-worker cooperation × job insecurity (H_{27d}) and mental health complaints (i.e., mediated moderation). In addition to the hypothesized indirect effects, the interaction terms job challenge × job insecurity, role harmony × job insecurity, leader support × job insecurity and co-worker cooperation × job insecurity have direct cross-lagged effects on mental health complaints. In particular, the psychological climate dimensions buffer (attenuate) the positive cross-lagged effects from job insecurity to mental health complaints: the positive cross-lagged effect from job insecurity to mental health complaints is weaker under conditions of high (vs. low) levels of perceived job challenge (H_{28a}), role harmony (H_{28b}), leader support (H_{28c}) and co-worker cooperation (H_{28d}).

Hypotheses 29 and 30. Perceived control partially mediates the relationship between the interaction terms job challenge × perceived internal employability (H_{29a}), role harmony × perceived internal employability (H_{29b}), leader support × perceived internal employability (H_{29c}) and co-worker cooperation × perceived internal employability (H_{29d}) and life satisfaction (i.e., mediated moderation). In addition to the hypothesized indirect effects, the interaction terms job challenge × perceived internal employability, role harmony × perceived internal employability, leader support × perceived internal employability and co-worker cooperation × perceived internal employability have direct cross-lagged effects on life satisfaction. In particular, the psychological climate dimensions amplify (accentuate) the positive cross-lagged effects from perceived internal employability to life satisfaction: the positive cross-lagged effect from perceived internal employability to life satisfaction is stronger under conditions of high (vs. low) levels of perceived job challenge (H_{30a}), role harmony (H_{30b}), leader support (H_{30c}) and co-worker cooperation (H_{30d}).

Hypotheses 31 and 32. Perceived control partially mediates the relationship between the interaction terms job challenge × perceived internal employability (H_{31a}), role harmony × perceived internal employability (H_{31b}), leader support × perceived internal employability (H_{31c}) and co-worker cooperation × perceived internal employability (H_{31d}) and mental health complaints (i.e., mediated moderation). In addition to the hypothesized indirect effects, the interaction terms job challenge × perceived internal employability, role harmony × perceived internal employability, leader support × perceived internal employability and co-worker cooperation × perceived internal employability have direct cross-lagged effects on mental health complaints. In particular, the psychological climate dimensions amplify (accentuate) the negative

cross-lagged effects from perceived internal employability on mental health complaints: the negative cross-lagged effect from perceived internal employability to mental health complaints is stronger under conditions of high (vs. low) levels of perceived job challenge (H_{32a}), role harmony (H_{32b}), leader support (H_{32c}) and co-worker cooperation (H_{32d}).

Hypotheses 33 and 34. Perceived control partially mediates the relationship between the interaction terms job challenge × perceived external employability (H_{33a}), role harmony × perceived external employability (H_{33b}), leader support × perceived external employability (H_{33c}) and co-worker cooperation × perceived external employability (H_{33d}) and life satisfaction. In addition to the hypothesized indirect effects, the interaction terms job challenge × perceived external employability, role harmony × perceived external employability, leader support × perceived external employability and co-worker cooperation × perceived external employability have direct cross-lagged effects on life satisfaction. In particular, the psychological climate dimensions amplify (accentuate) the positive cross-lagged effects from perceived external employability to life satisfaction: the positive cross-lagged effect from perceived external employability to life satisfaction is stronger under conditions of high (vs. low) levels of perceived job challenge (H_{34a}), role harmony (H_{34b}), leader support (H_{34c}) and co-worker cooperation (H_{34d}).

Hypotheses 35 and 36. Perceived control partially mediates the relationship between the interaction terms job challenge × perceived external employability (H_{35a}), role harmony × perceived external employability (H_{35b}), leader support × perceived external employability (H_{35c}) and co-worker cooperation × perceived external employability (H_{35d}) and mental health complaints (i.e., mediated moderation). In addition to the hypothesized indirect effects, the interaction terms job challenge × perceived external employability, role harmony × perceived external employability, leader support × perceived external employability and co-worker cooperation × perceived external employability have direct cross-lagged effects on mental health complaints. In particular, the psychological climate dimensions amplify (accentuate) the negative cross-lagged effects from perceived external employability on mental health complaints, i.e., the negative cross-lagged effect from perceived external employability to mental health complaints is stronger under conditions of high (vs. low) levels of perceived job challenge (H_{36a}), role harmony (H_{36b}), leader support (H_{36c}) and co-worker cooperation (H_{36d}).

Accounting for plausible reciprocal effects

Although not in the focus of this PhD, we acknowledge that reversed causation may also be plausible with regards to some effects presented in Figure 1. For example, based on the assumptions of COR theory and SCT, we hypothesized that each PC dimension may alter employees' occupational self-efficacy. In addition, it may be conceivable that self-efficacy beliefs also affect (perceptions of) the work environment across time. As such, employees with a higher level of occupational self-efficacy may proactively select environments that better fit their needs or even directly change some features of their environments (e.g., acquire more trust from their leaders) (Bandura, 1978; James & Sells, 1981). As another example, the experience of job insecurity may not just depend on the resources one has in his/her work environment, but can also lead to deterioration of these resources. To illustrate, job insecure employees may more negatively appraise the support of their leaders as a result of psychological contract breach. Furthermore, the perception of job insecurity may cause friction and competition among co-workers resulting with deteriorated cooperation (Shoss, 2017). Added to this, one could also argue that employees' well-being may affect perceived control, as well as PC perceptions. For example, as individual's perception of the work environment depends not only environmental stimuli, but also on personal attributes of the employee who cognitively constructs these stimuli (i.e., P × S interaction paradigm; James & Sells, 1981), we might assume that employees with poorer mental health may more negatively appraise the stimuli related to their job tasks, work roles, leaders and co-workers. Furthermore, employees with higher well-being may indeed be more able to demonstrate superior performance, and in result be selected for more resourceful job positions. Finally, as with occupational self-efficacy, employees with higher well-being may be more able to proactively change their environment (e.g., by increasing the actual level of control over their current work situation or reinforcing positive leader behaviors) (de Jonge *et al*., 2010). In all, the cross-lagged panel research design utilized in this PhD enables us to test the normal and alternative reversed and reciprocal causational effects, as well as to examine which causality direction is superior.

METHOD

Participants and procedure

To address the PhD's hypotheses, we utilized the cross-lagged panel design, a longitudinal research design that constitutes of assessing each variable at each measurement occasion (Burkholder & Harlow, 2003). In comparison to cross-sectional design (in which data from each participant is collected at only one measurement occasion), cross-lagged panel design has two relevant statistical features that enable more powerful test of causality between study variables. First, it enables the control of the baseline level of the outcome (i.e., endogenous) variable. As such, researchers can estimate whether there is significant across-time relationship between the hypothesized antecedent and outcome variable once the baseline level (i.e., the relative construct stability) of the outcome variable has been controlled for. The resulting across-time relationship (i.e. cross-lagged effect) enable one to draw more adequate inferences about the causality between two variables (Burkholder & Harlow, 2003). Second, by employing a cross-lagged panel design researchers can test both directions of potential causality separately (i.e., normal and revered causal relationships) and simultaneously (i.e. reciprocal causal relationships), thereby estimating which one is empirically most justifiable (De Lange, 2005).

Data for this cross-lagged panel study were collected on three measurement occasions spaced approximately six months apart: the first wave took place from May to July 2016 (Time 1; T1), the second wave from November 2016 to January 2017 (Time 2; T2) and the third wave from May to July 2017 (Time 3; T3). We chose three measurement occasions as *at least* three measurement waves are necessary to test and reveal true mediational effects (Little, 2013). Furthermore, in light of the scarce theoretical argumentations concerning the most appropriate time lag between measurement occasions, we chose a 6-month time lag in line with the following. Shorter time lags (e.g., three months) were assessed as insufficient for the real changes to take place in the hypothesized outcome variables (e.g., the effect from job insecurity and perceived external/internal employability to perceived control). Additionally, we were concerned that shorter time lags might seriously reduce the response rate in our particular sample due to 'research-fatigue' (De Lange, 2005). In particular, many of the organizations that participated in our study have already extensively used on-line surveys among their employees in order to assess work engagement, job satisfaction, etc. In contrast, time lags longer than 6

months (e.g., 1 year) were evaluated as less appropriate because of the increased probability of interim effects (i.e., effects of unmeasured events during the time lag that may influence the cross-lagged effects; De Lange, 2005) and dropout of entire organizations (e.g., due to mergers). Additionally, the existing studies that tested comparable hypotheses to ours have already demonstrated significant cross-lagged effects over a 6-month time period (e.g., Vander Elst *et al.*, 2014b).

To collect the data we established collaboration with HR managers from 29 private sector organizations stationed across Croatia. The organizations were heterogeneous in terms of size (with number of employees ranging from 24 to 630) and industry (e.g., IT, bank, education, insurance, pharmaceutical services). In exchange for their participation, the HR managers from each organization received a written report with a climate analysis after each measurement occasion (i.e., we prepared 87 reports in total). However, we made an agreement with management that these data would not be communicated to their employees before the completion of the third measurement occasion (as knowledge on the results could have influenced participants' responses in subsequent measurement occasions). Data was collected via an online survey. Participants provided their informed consent by starting up the survey after the relevant information had been presented at the beginning of the survey. To increase the response rates, we used several literature-based response-enhancing techniques that were applicable in our study (for an overview, see Anseel, Lievens, Schollaert, & Choragwicka, 2010). In particular, HR managers provided all employees an advance notice via the organizations' intranet informing them that they will receive an electronic survey to complete. Where possible, HR managers also personally announced the survey. Second, the advance notice, as well as the cover letter of the survey, contained information that emphasized why the survey topic might be relevant for all parties involved (e.g., the results could be used for the improvement of employees' work environment). Third, employees were informed about the university sponsorship of the survey: they were explained that the survey was part of a collaboration between the organization and the university. This procedure may result in a more neutral and trustworthy image of the survey, resulting in higher response rates (Anseel *et al.*, 2010). Fourth, anonymity was ensured by instructing employees to create codes that could not be linked to them personally, but that were needed to link the surveys across waves. Additionally, 2 to 3 reminders were sent out in each measurement occasion. Finally, we followed the instruction outlined by Newman (2014) and

administered the survey to each individual in the sampling frame at each measurement occasion, regardless of whether (s)he has participated in previous wave(s). Participants were informed that their participation was voluntary and they could withdraw from the study at any point. The study was approved by the Ethical committee of the Department of psychology (University of Zagreb).

Each participant had to meet two inclusion criteria in order to be retained in our data set: (s)he had to occupy a white-collar position (i.e., a position that required a professional knowledge and predominantly non-manual skills) and hold an employment contract with her/his organization (i.e., we excluded participants with contracts such as piece work agreements and student contracts). In result, a total of 2133 employees provided usable data at T1 (response rate = 66.4%), 1847 at T2 (response rate = 52.3%) and 1571 at T3 (response rate = 42.5%). In all, 3669 employees participated across the three waves: 1090 (29.7%) employees participated only at T1; 696 (19.0%) only at T2; 577 (15.7%) only at T3; 312 (8.5%) at T1 and T2, 155 (4.2%) at T1 and T3; 263 (7.2%) at T2 and T3 and 576 (15.7%) at T1, T2 and T3. Accordingly, our sample was composed of 3669 employees who participated in at least one measurement occasion including initial non-respondents (cf. Newman, 2014).

Slightly more than half of the participants were male (55.6%), and they were on average 37.8 (*SD* = 9.4) years old at T1, 37.1 (*SD* = 9.3) years old at T2 and 38.1 (*SD* = 9.24) years old at T3. Most of the participants completed the tertiary level of education (i.e., 62.7% obtained a bachelor's, master's or equivalent diploma and 6.5% obtained a doctoral or equivalent diploma), whereas 30.8% completed upper secondary or pre-university education. Average organizational tenure was 85.1 (*SD* = 78.1) months at T1, 84.0 (*SD* = 77.7) months at T2 and 92.5 (*SD* = 78.8) months at T3. Most of the participants had a permanent contract (i.e., 89.0%, 89.7% and 93.4% at T1, T2 and T3, respectively), as compared to a temporary contract. More than half of the participants did not hold a managerial position (i.e., 65.6%, 64.2% and 64.1% at T1, T2 and T3, respectively). At T2, 6.4% of the employees reported an intra-organization job change, 11.9% reported a change of a leader and 9.5% reported a change of the majority of co-workers between T1 and T2. At T3, 8.3% of the employees reported an intra-organization job change, 19% reported a change of a leader and 10.1% reported a change of the majority of co-workers between T2 and T3.

Sample dropout analysis

To test whether there was any systematic dropout in our study, we examined whether employees who continued participation differed from those who dropped out in demographic (i.e., gender, age, education, organizational tenure, contract and managerial position) and study variables (i.e., job challenge, role harmony and leader support[6], co-worker cooperation, job insecurity, perceived internal employability, perceived external employability, occupational self-efficacy, perceived control, life satisfaction and mental health complaints). For that purpose, we analyzed dropout between T1 and T2; T2 and T3 and T1 and T3. Regarding attrition between T1 and T2, participants who continued participation at T2 (versus those who dropped out after T1) perceived a higher level of job challenge ($t(1976) = 2.88$, $p < .01$), role harmony and leader support ($t(1935.22) = 3.93$, $p < .001$) and co-worker cooperation ($t(1974) = 2.96$, $p < .01$) at T1. They also perceived a lower level of job insecurity at T2 ($t(1914) = 2.80$, $p < .001$). In addition, more women than man continued participation at T2 ($\chi^2(1) = 24.87$, $p < .001$). Regarding attrition between T2 and T3, participants who continued participation at T3 (versus those who dropped out after T2), perceived higher levels of role harmony and leader support at T2 ($t(1533) = 2.34$, $p < .05$). Concerning demographic variables, more women than man ($\chi^2(1) = 37.25$, $p < .001$) and more employees who completed the tertiary level of education, as compared to those with upper secondary or pre-university education ($\chi^2(2) = 7.89$, $p < .01$) continued participation at T3. Regarding attrition between T1 and T3, participants who continued participation at T3 (versus those who dropped out after T1), perceived higher levels of job challenge ($t(1651.06) = 3.48$, $p < .01$), role harmony and leader support ($t(1819) = 4.77$, $p < .001$) and co-worker cooperation ($t(1638.18) = 3.49$, $p < .01$) at T1, as well as lower level of job insecurity ($t(1759) = 4.08$, $p < .001$) at T1. They also reported less mental health complaints at T1 ($t(1591.99) = 2.47$, $p < .01$). Additionally, dropout after T1 was again higher among male participants ($\chi^2(1) = 20.07$, $p < .001$) and among employees with upper secondary or pre-university education, as compared to employees with completed tertiary level of education ($\chi^2(2) = 7.76$, $p < .05$).

[6] Note that role harmony and leader support represented one, instead of two factors, as will be explained on p. 73.

Measures

All constructs were measured by internationally validated measures and all measures were subjected to a translation and back-translation procedure (Behling & Law, 2000). The measure of PC was adapted for the purpose of this study and additionally validated in a pilot study.

Psychological climate was measured with the adapted version of the PC questionnaire (PCQ) developed by James and colleagues (cf. James & James, 1989). In the latest version of the James *et al.*'s PCQ, four psychological climate factors were operationalized by 17 subdimensions (i.e., psychological climate variables that represent item composites) (James & James, 1992). More recently however, scholars have utilized shortened adaptations of the PCQ that operationalize job challenge, role harmony, leader support and co-worker cooperation with a fewer number of subdimensions (cf. Baltes, Bauer, Bajdo, & Parker, 2002; Baltes, Zhdanova, & Parker, 2009; Gagnon, Paquet, Courcy, & Parker, 2009). As shorter measures are more applicable in organizational settings, in the present study we aligned with these efforts. For this purpose we conducted a pilot study on an independent sample aiming to obtain a psychometrically sound measure of PC that is shorter than the original and more applicable in diverse organizational settings (a more detailed description of the participants, procedure and the results of the pilot study is provided in the Appendix). In result, the adapted PCQ totaled 39 items measuring 8 (sub)dimensions that reflect the conceptual core of the four psychological climate factors, i.e. the perceived extent to which jobs are challenging, roles are harmonious, leaders are supportive and co-workers are cooperative. In particular, job challenge was measured by 3 subdimensions: job challenge and variety (5 items; e.g., "My job challenges my abilities"; $\alpha_{T1} = .86$; $\alpha_{T2} = .86$; $\alpha_{T3} = .88$), job autonomy (5 items; e.g., "I am allowed to schedule my own work"; $\alpha_{T1} = .86$; $\alpha_{T2} = .88$; $\alpha_{T3} = .88$) and job importance (4 items; e.g., "I feel that my work is highly important"; $\alpha_{T1} = .83$; $\alpha_{T2} = .84$; $\alpha_{T3} = .86$). Role harmony was measured by 2 subdimensions: role clarity (5 items; e.g., "My work assignments are clearly defined"; $\alpha_{T1} = .83$; $\alpha_{T2} = .85$; $\alpha_{T3} = .84$) and role congruence (5 items; e.g., "I have to do things that should be done differently", reversely coded; $\alpha_{T1} = .87$; $\alpha_{T2} = .87$; $\alpha_{T3} = .87$). Leader support was measured by 2 subdimensions: leader goal emphasis and work facilitation (5 items; e.g., "My supervisor encourages me to give my best efforts."; $\alpha_{T1} = .82$; $\alpha_{T2} = .84$; $\alpha_{T3} = .83$) and participative decision making (5 items; e.g., "Before decisions about my job are made, my supervisor hears all of my concerns."; $\alpha_{T1} = .87$; $\alpha_{T2} = .89$; $\alpha_{T3} = .90$).

Co-worker cooperation was measured by 5 items (e.g., "There is a feeling of cooperation among my colleagues"; α_{T1} = .90; α_{T2} = .92; α_{T3} = .91). Responses were provided on a scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*).

Occupational self-efficacy was measured with the short 6-item version of the occupational self-efficacy scale developed by Schyns and von Collani (2002) and adapted by Rigotti *et al.* (2008). All items in this scale are domain specific, i.e. fit into the work context (e.g., "I meet the goals that I set for myself in my job."). Responses were provided on a scale ranging from 1 (*not at all true*) to 6 (*completely true*). Cronbach's alpha coefficients for this scale were .86 (T1), .87 (T2) and .88 (T3).

Job insecurity. To measure job insecurity we used the 4-item job insecurity scale developed by De Witte (2000) and validated by Vander Elst *et al*. (2014a). A sample item is "I think I might lose my job in the near future". Participants provided responses on a scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Cronbach's alpha coefficients for job insecurity scale were .89 (T1), .90 (T2) and .92 (T3).

Perceived internal/external employability. Both constructs were measured by the scale developed by De Witte (1992) and adapted by De Cuyper and De Witte (2010). De Witte (1992) developed a 4-item global measure of perceived employability (sample item: "I am optimistic that I could find another job, if I looked for one."). De Cuyper and De Witte (2010) subsequently adapted the items of the original scale to distinguish between perceived internal employability (sample item: "I am optimistic that I would find another job with this employer if I looked for one.") and perceived external employability (sample item: "I am optimistic that I would find another job elsewhere, if I looked for one."). Each measure consisted of 4 items. Responses were provided on a scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Cronbach's alpha coefficients were .87 (T1), .88 (T2) and .88 (T3) for the scale measuring perceived internal employability and .90 (T1), .92 (T2) and .93 (T3) for the scale measuring perceived external employability.

Perceived control. To measure perceived control, we used the 3-item powerlessness scale by Ashford *et al.* (1989) that has been extensively used in job insecurity research to measure perceived control (e.g., Vander Elst *et al.*, 2011; Vander Elst *et al.*, 2014b; Urbanaviciute *et al.*, 2015). A sample item is: "I have enough power in this organization to control events that might affect my job". Responses to this scale were provided on a scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Cronbach's alpha coefficients were .83 (T1), .85 (T2) and .86 (T3).

Life satisfaction was measured with the 5-item Satisfaction with Life Scale (SWLS; Pavot & Diener, 1993) that measures the cognitive and global evaluation of the quality of one's life as a whole (Pavot & Diener, 2008). A sample item is: "In most ways my life is close to my ideal". Participants provided responses on a scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). Cronbach's alpha coefficients for SWLS were .87 (T1), .86 (T2) and .87 (T3).

Mental health complaints. To measure mental health complaints, we used the 5-item Mental Health Inventory (MHI) by Berwick *et al.* (1991). A sample item is "How much of the time, during the last month, have you been a very nervous person?". We excluded one item ("How much of the time, during the last month, have you been a happy person?") due to its cross-loadings on the job challenge dimension at each measurement occasion. Responses were provided on a scale ranging from 0 (*never*) to 6 (*always*). Cronbach's alpha coefficients were .84 (T1), .85 (T2) and .85 (T3).

Control variables. In order to exclude alternative explanations for the obtained results, we controlled for several demographic and work-related characteristics that have been found to relate to our study variables (e.g., Keim *et al.*, 2014; Kinnunen, Mäkikangas, Mauno, Siponen & Nätti, 2011; Schaubroeck *et al.*, 2001). These included: gender (0 = female, 1 = male), age (in years), education (recoded in two dummy variables with *doctoral or equivalent diploma* as the reference group), organizational tenure (in months), contract (0 = permanent, 1 = temporary), managerial position (0 = no, 1 = yes) and 3 aspects of intra-organizational change in the period of last six months: job (0 = no change, 1 = change), leader (0 = no change, 1 = change), and co-workers (0 = no change, 1 = change).

Data analyses

Data analyses were performed using Mplus 7.4 statistical software (Muthén & Muthén, 1998-2012). To address the study hypotheses, we conducted longitudinal structural equation modelling (SEM). All confirmatory and structural models were fitted by full information maximum likelihood estimation with robust standard errors and scale corrected χ^2-test (MLR estimator; Muthén & Muthén, 1998-2012) to account for multivariate non-normality in our data[7]. The overall goodness-of-model-fit was evaluated with a combination of the following conventional fit indices: standardized root mean square residual (SRMR), comparative fit index (CFI) and root mean square error of approximation (RMSEA). An acceptable fit between the hypothesized model and the observed data is indicated when values of SRMR and RMSEA are below .08 and the value of CFI equals or exceeds .90 (Bentler, 1990; Hu & Bentler, 1999). To statistically compare the fit of the nested models, we used the Sattora–Bentler scaled χ^2-difference test (Satorra & Bentler, 2001).

Missing data was treated by the full information maximum likelihood (FIML) method, a procedure that has been strongly recommended in the most recent literature (cf. Enders & Bandalos, 2001; Newman, 2014). This procedure enabled us to use the data from all participants who participated in one, two or three measurement occasions. As such, FIML is a direct estimation technique that uses all available information in the dataset to produce unbiased parameter estimates and accurate standard errors. In other words, missing values are not replaced or imputed – they are directly estimated from the incomplete data set (Little, 2013). This method has been strongly advocated in the literature because it has several important advantages over other, still more commonly used techniques, such as listwise deletion. First, the results of simulation studies demonstrate that FIML produces unbiased parameter estimates when data are not missing completely at random (MCAR) (Newman, 2014), as indicated by Little's MCAR test ($\chi^2(1862) = 2532.89$, $p < .001$). Second, FIML enables a more accurate test of the study hypotheses due to accurately produced standard errors of parameter estimates (Newman, 2003).

[7] Multivariate normality was tested with the R-3.5.0 program (R Core Team, 2018). We separately tested whether the assumption of multivariate normality holds for the covariance matrix corresponding to: model testing longitudinal mediation (Mardia $M_{skewness} = 276997.24$, $p < .001$; Mardia $M_{kurtosis} = 99.38$, $p < .001$) and model testing longitudinal mediated moderation (Mardia $M_{skewness} = 1874835.38$, $p < .001$; Mardia $M_{kurtosis} = 234.20$, $p < .001$). Based on the presented results, the assumption of multivariate normality needed to be rejected.

This feature is most obvious when compared to listwise deletion: while FIML uses all available information in the dataset, listwise deletion discards real data from wave 2 and wave 1 leading to overestimated standard errors for these waves (i.e., inflated Type II error) (Newman, 2003). Finally, by using all available data, the FIML method produces results that are more generalizable to a target population than methods such as listwise or pairwise deletion. To illustrate this point, Newman (2014, p. 384) states that listwise deletion only justifies the generalization 'to a target population of "individuals who fill out surveys completely"', which is rarely of theoretical interest.

Prior to conducting our main study analyses, we examined the extent to which the multilevel structure of our data violates the assumption of independence of observations. More specifically, employees in our dataset were nested within organizations, a data structure that implies that their observations are not completely mutually independent. Rather, observations of employees clustered within the same organization tend to be more similar than the observations of employees clustered within different organizations (Hox, 2010). If not controlled for, the violation of assumption of independence of the observations results in underestimated standard errors and the consequential inflation of Type 1 error (Hox, 2010). Therefore, to estimate the extent to which this assumption is violated in our dataset, we calculated the intraclass correlation coefficient (i.e., $ICC_{(1)}$) for each study variable at each measurement occasion. The $ICC_{(1)}$ represents the proportion of the total variance explained by group membership (Hox, 2010). As presented in Table 1, the $ICC_{(1)}$ values obtained in the present study ranged from .01 to .25 indicating that 1 to 25% of variance in employees' observations was explained by the differences at the inter-organizational level. In this regard, the lowest $ICC_{(1)}$ values were obtained for the measures of life satisfaction, occupational self-efficacy and mental health complaints, whereas the highest $ICC_{(1)}$ values were obtained for measures of job insecurity and co-worker cooperation, at each measurement occasion. Although well-established cut off values for $ICC_{(1)}$ are not available, the existing literature does provide some useful guidelines. As such, Hox (2010) suggested that values of .05, .10 and .15 can be considered a small, medium or large effect, respectively, whereas LeBreton and Senter (2008) considered the values of .01, .10 and .25 as a small, medium and large effect, respectively. In line with these benchmarks, the $ICC_{(1)}$ values obtained in the present study suggest that the proportion of the between-organization variance is not negligible for most of the study variables leading to the conclusion that the

assumption of independence of the observations might be violated to a non-ignorable extent. The Mplus program offers two approaches to address this problem (Muthén & Muthén, 1998-2012). The first approach, available with the TYPE=COMPLEX option, computes the χ^2-test of model fit and standard errors taking into account the non-independence of observations (Asparouhov & Muthén, 2006). The obtained standard errors are adjusted, thereby providing more appropriate tests of statistical significance. The second approach refers to multilevel modeling. This approach, available with TYPE=TWOLEVEL option, includes the explicit modeling of the non-independence of observations: the hypothesized model is specified for each level of the multilevel data. Because all constructs in this PhD (e.g., PC, job insecurity, perceived internal/external employability) and corresponding hypotheses are conceptualized at the individual-level (i.e., level of employees), and the organization-level is not the focus of our research interest, we used the first approach (i.e., TYPE=COMPLEX) to obtain the χ^2-test statistic and standard errors that are robust to non-independence of observations.

Table 1. ICC values for each study variable (at T1, T2 and T3)

Study variable	$ICC_{(1)}$ (T1)	$ICC_{(1)}$ (T2)	$ICC_{(1)}$ (T3)
job challenge	.07	.06	.06
role harmony	.11	.14	.11
co-worker cooperation	.17	.17	.25
occupational self-efficacy	.04	.03	.04
job insecurity	.16	.19	.20
perceived internal employability	.06	.09	.07
perceived external employability	.11	.12	.10
perceived control	.10	.06	.10
life satisfaction	.04	.01	.02
mental health complaints	.06	.03	.03

Psychological climate dimensions predicting job insecurity and perceived internal/external employability: testing the mediating role of occupational-self efficacy

The statistical analyses were performed in three steps: (i) test of the hypothesized measurement model separately for each measurement occasion; (ii) test of the factorial invariance across time and (iii) test of the hypothesized cross-lagged relationships.

In the first step, we conducted a set of confirmatory factor analyses (CFAs) to test the construct validity of the study scales at T1, T2 and T3. For that purpose, we evaluated the fit of the hypothesized 8-factor measurement model including 4 PC dimensions (job challenge, role harmony, leader support and co-worker cooperation), occupational self-efficacy, job insecurity, perceived internal employability and perceived external employability. All indicators were allowed to load on their respective factor and all factors were allowed to correlate. Co-worker cooperation, occupational self-efficacy, job insecurity, perceived internal employability and perceived external employability were defined by items, whereas job challenge, role harmony and leader support were defined by item-composites (i.e., PC variables) (James & James, 1989). To calculate PC variables we averaged scores of items that measured job challenge and variety, job autonomy, job importance, role clarity, role congruence, leader goal emphasis and work facilitation, and participative decision making. The acceptability of the fitted CFA solutions was evaluated based on the overall goodness of model fit (a more detailed explanation of global fit indices used in the present study was provided above) and local fit indices (i.e., interpretability, statistical significance and size of the factor loadings and factor intercorrelations) (Brown, 2006). In particular, we examined whether all indicators loaded significantly and positively to the corresponding latent factor (with a cut-off value of standardized factor loading $\geq$ .50 demonstrating that a particular indicator serves as a reasonable measure of its factor). In addition, we inspected whether the correlations between the latent factors supported their discriminant validity (with a cut-off value $\leq$ .85 indicating that the latent factors represent distinct constructs) (Brown, 2006).

In the second step, we tested the factorial invariance across three measurement occasions, a condition that is necessary to establish prior testing cross-lagged relationships. This step enables one to exclude the possibility that temporal changes observed in constructs are due to changes in the measurement of the constructs instead of true changes (Brown, 2006). For that purpose, we compared the unconstrained and constrained stability model. To specify the

unconstrained stability model, we connected the finally accepted measurement models from each measurement occasion by adding freely estimated autoregressive paths between corresponding constructs from T1 to T2 and from T2 to T3. Error variances between corresponding items were allowed to correlate and all factor loadings were allowed to vary across time. In addition, the model included specified correlations among all exogenous variables at T1 and among all disturbances associated with endogenous variables at T2 and T3. To specify the constrained stability model, we additionally fixed indicators' factors loadings equal across T1 to T3. The non-significant decrease in model fit of the constrained model demonstrates the full invariance of the factor loadings across time (i.e., metric or weak factorial invariance). When no full invariance was established, we freed factor loadings in a stepwise manner aiming to establish partial metric invariance (Byrne, 2016). The decision on which factor loading to free was based on the calculated difference between the unstandardized factor loadings obtained in constrained model at T1, T2 and T3. The stability model with partially constrained factor loadings served as the baseline model to test the cross-lagged relationships in the following step.

In the third step, we tested the hypothesized structural (partial) mediation model with specified cross-lagged effects from PC to job insecurity and perceived internal/external employability via occupational self-efficacy (i.e., normal causation model), and compared it with alternative reversed and reciprocal causation model. By employing a cross-lagged panel design, we were able to investigate the predictors of across-time *changes* in the study constructs, which enables drawing stronger causal inferences (Burkholder & Harlow, 2003). In particular, we constructed four structural models: a stability model, normal causation model, reversed causation model and reciprocal causation model. As described in the previous step, the stability model was constructed by specifying autoregressive paths between the corresponding constructs from T1 to T2 and from T2 to T3. This model included partially constrained factor loadings to be equal across time, freely estimated correlations between error variances of the corresponding indicators across time and correlations among all exogenous variables at T1 and among all disturbances associated with endogenous variables at T2 and T3. In addition, we also included control variables as predictors of T2 and T3 versions of the constructs (Little, 2013). In particular, gender, age, education, organizational tenure, and managerial position represented static control variables and were specified as T1 variables predicting T2 and T3 constructs. Contract type represented a time-varying control variable and was therefore specified as a T1 and T2 variable

predicting T2 and T3 constructs, respectively (Little, 2013). Six intra-organizational change variables (i.e., change of job, leader and co-workers after T1 and T2) predicted T2 and T3 constructs, accounting for the changes that have occurred after the preceding measurement occasion. To specify the hypothesized normal causation model, we added the following cross-lagged effects to the stability model: (i) from the PC dimensions at T1 and T2 to occupational self-efficacy at T2 and T3, respectively; (ii) from occupational self-efficacy at T1 and T2 to job insecurity and perceived internal/external employability at T2 and T3, respectively; and (iii) from the PC dimensions at T1 to job insecurity and perceived internal/external employability at T3. To specify the reversed causation model, the following cross-lagged effects were added to the stability model: (i) from job insecurity and perceived internal/external employability at T1 and T2 to occupational self-efficacy at T2 and T3, respectively; (ii) from occupational self-efficacy at T1 and T2 to the PC dimensions at T2 and T3, respectively; and (iii) from job insecurity and perceived internal/external employability at T1 to the PC dimensions at T3. The reciprocal causation model included all cross-lagged effects from the normal and reversed causation model. To address the study hypotheses, the model fit of each of the less constrained cross-lagged models (i.e., normal, reversed and reciprocal causation model) was compared to the model fit of the more constrained stability model. A statistically significant increase in model fit of the less constrained model(s) as compared to the stability model had to be obtained in order to draw any causal inferences about the study constructs. In addition, to establish whether the hypothesized indirect effects were statistically significant, we calculated the products of the effects *a* (corresponding to T1 antecedents→T2 mediator effects) and *b* (corresponding to T2 mediator→T3 outcomes effects). Only the statistically significant products of the effects encompassing these temporal sequences can properly account for the true indirect effects (Little, 2013)[8]. Unless stated differently, none of the tested measurement and structural models did include specified correlations between indicator error variances.

[8] It should be noted that we used normal theory to test the statistical significance of the indirect effects as bootstrapping cannot be performed with MLR estimator (Muthén & Muthén, 1998-2012).

Psychological climate dimensions moderating the effects from job insecurity and perceived internal/external employability to employees' well-being: testing the mediating role of perceived control

The statistical analyses followed the same three steps described in the previous paragraphs: (i) test of the hypothesized measurement model separately for each measurement occasion; (ii) test of the factorial invariance across time and (iii) test of the hypothesized cross-lagged relationships. For that reason, only parts of the analytical procedure that differed from the previous one are reported in the following paragraphs.

In the first step, we tested the hypothesized 10-factor measurement model at T1, T2 and T3. This model included 4 PC dimensions (job challenge, role harmony, leader support and co-worker cooperation), job insecurity, perceived internal employability, perceived external employability, perceived control, life satisfaction and mental health complaints. Perceived control, life satisfaction and mental health complaints were defined by the corresponding items.

The second step included the test of factorial invariance across T1, T2 and T3. The invariance of factor loadings was again tested by comparing the unconstrained and constrained stability model. Evidence of full factorial invariance was established by the non-significant decrease in model fit of the constrained model as compared to the unconstrained model.

In the third step, we tested the hypothesized structural mediated moderation model. This model included cross-lagged effects from PC dimensions, job insecurity and perceived internal/external employability to life satisfaction and mental health complaints via perceived control (i.e., normal causation model). In addition, it included the moderating cross-lagged effects encompassing the hypothesized buffering and amplifying effects of PC dimensions. To assess the cross-lagged moderation, we created latent-variable interactions using the unconstrained approach (cf. Algina & Moulder, 2001; Marsh, Wen, & Hau, 2004). In line with this approach, the interaction construct is defined by the products of indicators measuring hypothesized moderator and predictor constructs. In particular, we conducted the following steps suggested by Marsh, Hau, Wen, Nagengast and Morin (2013). First, we centered all indicators of the hypothesized moderators (i.e., PC dimensions), predictors (i.e., job insecurity, perceived internal employability and perceived external employability), mediator (i.e., perceived control) and outcomes (i.e., life satisfaction and mental health complaints) to their mean. Mean centering is conducted by subtracting the mean of the group from each score, a procedure that results with

a new set of scores that have a mean of 0 (Little, 2013). Mean centering is necessary to minimize the collinearity problem, which stems from the fact that the product variable is highly correlated with the two variables from which it is calculated (Little, 2013). In the second step, we calculated the product indicators using the all-possible-pair strategy (cf. Little, 2013). This strategy is conducted by multiplying each indicator of a predictor variable by each indicator of a moderator variable resulting with all possible combinations of the main-effect indicators that fully capture the information about the interaction. Finally, the mean centered indicators were used to define the corresponding latent variables. Accordingly, the latent interactions were defined by products of indicators that measure its constituent constructs: T1 interaction constructs were defined by indicators measuring T1 predictors and moderators, whereas T2 interaction constructs were defined by indicators measuring T2 predictors and moderators. For each of these latent interactions, we specified the correlations between the residuals of the product indicators that contain the identical indicator (Little, 2013). The resulting latent interactions have two important features. First, latent variable approaches have more power to detect moderating effects as compared to the approaches based on the product of two manifest variables. In particular, they control for the measurement error which is substantially larger in case of testing the effect of a product of two variables than the effects of each separate variable (i.e., the measurement error of each of the main effects variables combines multiplicatively in the formation of the interaction term) (Marsh *et al.*, 2013). Second, latent-variable interactions represent a purely mathematical device used to determine whether one variable has a moderating effect on the relationship between two other variables. In result, they should not be included in tests of measurement models and tests of invariance (Little, 2013). After constructing the latent constructs, we specified three structural models: (1) the stability model, (2) normal causation model and (3) reciprocal causation model. Note that we did not specify the reversed causation model as we did not have any theoretical justification to hypothesize reversed moderating effects (e.g., moderating effects of PC dimensions on the effect from perceived control to job insecurity). The stability model included the following parameters identical to the ones of the stability model described on pp. 64-65: autoregressive paths between corresponding constructs from T1 to T2 and from T2 to T3; freely estimated correlations between error variances of the corresponding indicators across time; correlations among all exogenous variables at T1 and among all disturbances associated with endogenous variables at T2 and T3; and control variables

as predictors of T2 and T3 versions of the constructs. In addition, all factor loadings were fixed equal across time and the model included latent interactions (specified as described above). These interaction constructs[9] were entered into the model as saturated correlates of all constructs at all time points. The interaction constructs did not correlate only with the constructs that represented their hypothesized outcomes at the subsequent measurement occasion (Little, 2013). To specify the normal causation model, we added the following cross-lagged effects to the stability model: (i) from job insecurity and perceived internal/external employability at T1 and T2 to perceived control at T2 and T3, respectively; (ii) from the PC dimensions at T1 and T2 to perceived control at T2 and T3, respectively; (iii) from the interaction constructs at T1 and T2 to perceived control at T2 and T3, respectively; (iv) from perceived control at T1 and T2 to life satisfaction and mental health complaints at T2 and T3, respectively; (v) from job insecurity and perceived internal/external employability at T1 to life satisfaction and mental health complaints at T3; (vi) from the PC dimensions at T1 to life satisfaction and mental health complaints at T3; (vii) from the interaction constructs at T1 to life satisfaction and mental health complaints at T3. The reciprocal causation model additionally included the following reversed cross-lagged effects: (i) from life satisfaction and mental health complaints at T1 and T2 to perceived control at T2 and T3, respectively; (ii) from perceived control at T1 and T2 to job insecurity and perceived internal/external employability at T2 and T3, respectively; (iii) from perceived control at T1 and T2 to the PC climate dimensions at T2 and T3, respectively; (iv) from life satisfaction and mental health complaints at T1 to job insecurity and perceived internal/external employability at T3; and (v) from the PC dimensions at T1 to job insecurity and perceived internal/external employability at T3. As described in the previous set of analyses, the normal causation or the reciprocal causation model had to significantly improve the fit of the stability model in order to provide (partial) support for the study hypotheses. The significance of the mediating effects was again established according to the significance of the *ab* products, with the *a* effects corresponding to T1 antecedents→T2 mediator effects and *b* effects corresponding to

[9] In specifying the multiple moderation model, we followed the guidelines by Little (2013) who recommends testing each moderator separately first, in order to determine whether there is evidence that the particular construct can operate as a moderator. Then, the interaction constructs that were significant when tested separately, should be tested simultaneously to determine whether there is still evidence of their moderating effects (i.e., to determine whether a particular interaction construct has a unique effect when pitted against the other interaction constructs). Accordingly, we first tested each moderating effect separately. Then, we included only the significant ones into the stability, normal causation and reciprocal causation model.

T2 mediator→T3 outcomes effects. This procedure was also used to establish whether there is evidence for the mediated moderation: the *a* effects corresponded to effects from T1 interaction constructs (e.g., job challenge × job insecurity) to T2 mediator (i.e., perceived control), whereas the *b* effects corresponded to the effects from T2 mediator to T3 outcomes (i.e., life satisfaction and mental health complaints) (Fairchild & MacKinnon, 2009). Unless stated differently, none of the tested measurement and structural models did include specified correlations between indicator error variances.

RESULTS

Psychological climate dimensions predicting job insecurity and perceived internal/external employability: testing the mediating role of occupational-self efficacy

Descriptive statistics

Means, standard deviations and correlations between the study variables are presented in Table 2. Psychological climate dimensions correlated positively with occupational self-efficacy within and between the three measurement occasions. The only exception being the non-significant correlation between co-worker cooperation at T1 and occupational self-efficacy at T3 (r = .06; p > .05). The highest correlations between the psychological climate dimensions and occupational self-efficacy were obtained for the dimension job challenge (r = .24 – .38), whereas the lowest correlations were obtained for the dimension co-worker cooperation (r = .07 – .15). Furthermore, occupational self-efficacy correlated negatively with job insecurity and positively with perceived internal employability and perceived external employability at each measurement occasion and across time. Finally, job challenge correlated negatively with job insecurity and positively with perceived internal employability and perceived external employability within and between the three measurement occasions. The correlations were highest with perceived internal employability (r = .17 – .30), and lowest with perceived external employability (r = .09 – .15). Role harmony and leader support correlated negatively with job insecurity and positively with perceived internal employability. The correlations between role harmony and leader support and perceived external employability were non-significant. Co-worker cooperation correlated negatively with job insecurity and positively with perceived internal employability and perceived external employability within and between the three measurement occasions. The highest correlations were obtained between co-worker cooperation and job insecurity (r = -.23 – -.33), and the lowest between co-worker cooperation and perceived external employability (r = .06 – .12).

Table 2. Means, standard deviations and correlations between study variables (N = 3669).

	M	*SD*	1.	2.	3.	4.	5.	6.	7.	8.	9.
1. Job T1[a]	3.76	0.54	–								
2. Job T2[a]	3.74	0.55	.79***	–							
3. Job T3[a]	3.71	0.56	.73***	.78***	–						
4. RoLe T1[a]	3.62	0.62	.60***	.51***	.47***	–					
5. RoLe T2[a]	3.57	0.64	.49***	.63***	.51***	.76***	–				
6. RoLe T3[a]	3.56	0.62	.46***	.53***	.64***	.71***	.77***	–			
7. Co-work T1[a]	3.86	0.77	.31***	.27***	.21***	.51***	.42***	.38***	–		
8. Co-work T2[a]	3.83	0.78	.25***	.36***	.28***	.44***	.52***	.40***	.70***	–	
9. Co-work T3[a]	3.80	0.77	.24***	.27***	.32***	.42***	.44***	.49***	.68***	.74***	–
10. OCCSE T1[b]	5.09	0.56	.33***	.32***	.28***	.23***	.19***	.21***	.08*	.07*	.12***
11. OCCSE T2[b]	5.06	0.57	.31***	.38***	.31***	.20***	.25***	.23***	.07*	.13***	.13***
12. OCCSE T3[b]	5.07	0.57	.24***	.26***	.32***	.13***	.18***	.22***	.06	.10*	.15***
13. JI T1[a]	2.38	0.89	-.22***	-.21***	-.20***	-.25***	-.26***	-.24***	-.28***	-.25***	-.30***
14. JI T2[a]	2.30	0.86	-.18***	-.27***	-.23***	-.21***	-.30***	-.24***	-.25***	-.33***	-.33***
15. JI T3[a]	2.29	0.89	-.10*	-.16**	-.20***	-.14**	-.21***	-.26***	-.23***	-.27***	-.29***
16. PEI T1[a]	3.19	0.84	.24***	.26***	.21***	.23***	.24***	.22***	.20***	.18***	.20***
17. PEI T2[a]	3.23	0.85	.21***	.29***	.24***	.18***	.22***	.18***	.19***	.24***	.21***
18. PEI T3[a]	3.24	0.85	.17***	.24***	.30***	.16***	.21***	.26***	.17***	.22***	.21***
19. PEE T1[a]	3.65	0.82	.12**	.13***	.09*	-.03	.00	.01	.06*	.07*	.09***
20. PEE T2[a]	3.70	0.81	.12**	.15***	.09**	.02	.01	.01	.08*	.09*	.12***
21. PEE T3[a]	3.74	0.79	.10*	.11*	.09*	-.02	-.01	-.01	.09*	.09**	.11***

	10.	11.	12.	13.	14.	15.	16.	17.	18.	19.	20.
1. Job T1[a]											
2. Job T2[a]											
3. Job T3[a]											
4. RoLe T1[a]											
5. RoLe T2[a]											
6. RoLe T3[a]											
7. Co-work T1[a]											
8. Co-work T2[a]											
9. Co-work T3[a]											
10. OCCSE T1[b]	–										
11. OCCSE T2[b]	.70***	–									
12. OCCSE T3[b]	.64***	.64***	–								
13. JI T1[a]	-.20***	-.18***	-.20***	–							
14. JI T2[a]	-.16***	-.21***	-.17***	.69***	–						
15. JI T3[a]	-.14**	-.15**	-.20***	.62***	.63***	–					
16. PEI T1[a]	.19***	.22***	.20***	-.37***	-.33***	-.34***	–				
17. PEI T2[a]	.18***	.22***	.18***	-.29***	-.36***	-.31***	.60***	–			
18. PEI T3[a]	.14**	.16***	.19***	-.30***	-.30***	-.39***	.57***	.63***	–		
19. PEE T1[a]	.19***	.20***	.20***	-.35***	-.34***	-.35***	.42***	.35***	.30***	–	
20. PEE T2[a]	.14***	.24***	.17***	-.32***	-.37***	-.35***	.36***	.46***	.35***	.72***	–
21. PEE T3[a]	.13***	.15***	.20***	-.31***	-.32***	-.41***	.32***	.37***	.44***	.69***	.73***

Notes. Values were estimated using FIML approach. [a] Scale from 1 (lowest) to 5 (highest). [b] Scale from 1 (lowest) to 6 (highest). Job = Job challenge; RoLe = Role harmony and leader support; Co-work = Co-worker cooperation; OCCSE = Occupational self-efficacy; JI = Job insecurity; PEI = Perceived internal employability; PEE = Perceived external employability. * $p < .05$; ** $p < .01$; *** $p < .001$.

Measurement models

The hypothesized 8-factor measurement model provided a reasonable fit to the data at T1 ($\chi^2(377) = 2469.14$, $p < .001$, CFI = .92, RMSEA = .05, SRMR = .04), T2 ($\chi^2(377) = 2160.54$, $p < .001$, CFI = .94, RMSEA = .05, SRMR = .04), and T3 ($\chi^2(377) = 1979.19$, $p < .001$, CFI = .94, RMSEA = .05, SRMR = .04). All indicators were significantly and positively related to the corresponding latent factor (standardized regression weights ranged from .55 to .94 at T1; from 59 to .94 at T2; and from .56 to .94 at T3). However, the correlations between two PC factors exceeded the value of .85 at each measurement occasion, thereby severely challenging the justifiability of their conceptual differentiation (Brown, 2006). In particular, the correlations between role harmony and leader support equaled .94 at T1, .88 at T2 and .90 at T3, indicating that employees strongly attributed characteristics of the roles they pursued to their leadership. Due to their high overlap (i.e., poor discriminant validity) and resulting multi-collinearity problems, we respecified the model by collapsing indicators of these two factors into a single factor. The resulting 7-factor model fitted the data acceptably well at each measurement occasion (T1: $\chi^2(384) = 2538.80$, $p < .001$, CFI = .92, RMSEA = .05, SRMR = .05; T2: $\chi^2(384) = 2268.58$, $p < .001$, CFI = .94, RMSEA = .05, SRMR = .04 and T3: ($\chi^2(384) = 2044.61$, $p < .001$, CFI = .94, RMSEA = .05, SRMR = .04). All indicators were again significantly and positively related to the corresponding factor (standardized regression weights ranged from .55 to .94 at T1; .59 to .94 at T2, and .57 to .94 at T3). In addition, the correlations between the factors in this respecified CFA solution provided evidence for discriminant validity of all 7 factors: statistically significant correlations ranged in the interval |.07-.78| at T1; |.10-.81| at T2 and |.11-.81| at T3.

Factorial invariance

The factorial invariance was tested by comparing the stability model with unconstrained (M0) and constrained factor loadings (M1). The results are presented in Table 3. The unconstrained model combined the finally accepted models at each of the three measurement occasions (i.e., 7-factor models with job challenge, role harmony and leader support, co-worker cooperation, occupational self-efficacy, job insecurity, perceived internal employability and perceived external employability measured at T1, T2 and T3). Constraining all factor loadings equal across time (M1) resulted with statistically significant degradation of model fit compared to the unconstrained model (M0) ($\Delta\chi^2 = 68.22$, $\Delta df = 46$, $p < .05$). Therefore, we inspected the

calculated differences between the unstandardized factor loadings in the constrained model obtained at T1, T2 and T3 and freed them in a stepwise manner (starting from the factor loadings with the greatest obtained differences obtained at T1, T2 and T3). In particular, we first freed the factor loading of participative decision making at T1 (PC variable measuring factor role harmony and leader support). The comparison of this partially constrained model (M2a) and unconstrained model (M0) demonstrated that the fit of the unconstrained model is still significantly better ($\Delta\chi^2$ = 63.10, Δdf = 45, $p < .05$). Accordingly, we again inspected the obtained differences between the unstandardized factor loadings and additionally freed item 5 measuring co-worker cooperation at T3 (i.e., *"My colleagues support each other when there is a problem at work"*). The resulting partially constrained model with two freed factors loadings (M2b) demonstrated a non-significant loss of fit compared to the unconstrained model (M0) ($\Delta\chi^2$ = 56.08, Δdf = 44, $p > .05$). This finding demonstrated partial metric invariance over time. In addition, M2b fitted the data reasonably well ($\chi^2(3792) = 10227.13$, $p < .001$, CFI = .94, RMSEA = .02, SRMR = .06). Therefore, it served as the baseline model to test the hypothesized cross-lagged relationships.

Table 3. Tests of factorial invariance across T1, T2 and T3 and cross-lagged lagged relationships.

Model	χ^2	*df*	SRMR	CFI	RMSEA	Δ Model	Sattora-Bentler corrected $\Delta\chi^2$	Δ*df*
Tests of factorial invariance across T1, T2 and T3								
M0 Unconstrained model	10174.88***	3748	.06	.94	.02	–		
M1 Constrained model	10239.00***	3794	.06	.94	.02	M1 – M0	68.22*	46
M2a Partially constrained model (with unconstrained factor loading of PDM at T1)	10234.06***	3793	.06	.94	.02	M2a – M0	63.10*	45
M2b Partially constrained model (with unconstrained factor loading of PDM at T1 and item 5 of co-workers' support at T3)	10227.13***	3792	.06	.94	.02	M2b – M0	56.08	44
Tests of cross-lagged relationships								
S0 Stability model	12058.16***	4786	.05	.93	.02	–		
S1 Normal causation model	12039.98***	4765	.05	.93	.02	S1 – S0	31.84	21
S2 Reversed causation model	12029.59***	4765	.05	.93	.02	S2 – S0	30.44	21
S3 Reciprocal causation model	12018.42***	4744	.05	.93	.02	S3 – S0	58.89*	42

Notes. PDM = participative decision making;
*$p < .05$; ***$p < .001$.

Structural models

Table 3 presents the overall fit indices and comparison of the stability (S0) with three cross-lagged models. As demonstrated by the non-significant Sattora-Bentler corrected $\Delta\chi^2$-test statistics, neither the normal causation model (S1; $\Delta\chi^2 = 31.84$, $\Delta df = 21$, $p > .05$), nor the reversed causation model (S2; $\Delta\chi^2 = 30.44$, $\Delta df = 21$, $p > .05$) fitted the data significantly better than the stability model. In contrast, the reciprocal causation model significantly improved the model fit compared to the stability model (S3; $\Delta\chi^2 = 58.89$, $\Delta df = 42$, $p < .05$). Accordingly, the reciprocal model provided the basis for interpreting cross-lagged effects corresponding to our study hypotheses.

All cross-lagged effects from the reciprocal causation model with corresponding conclusions about the study hypotheses are presented in Table 4. Figure 4 depicts only the significant cross-lagged effects. With regard to cross-lagged effects corresponding to the normal causation model, we only found evidence for H_{10a}: co-worker cooperation at T1 had a negative cross-lagged effect on job insecurity at T3 ($\gamma = -.12$, $p < .05$). Accordingly, a higher level of perceived co-worker cooperation was related with a decrease in perceived job insecurity after a 1-year period. In addition to the cross-lagged effect corresponding to the normal causation model, we found one significant cross-lagged effect corresponding to the reversed causation model. In particular, self-efficacy at T1 had a positive cross-lagged effect on job challenge at T2 ($\gamma = .06$, $p < .05$), demonstrating that higher occupational-self efficacy was related with an increase in the perceived level of job challenge after a 6-month period. However, this effect was not significant from T2 to T3 ($\gamma = -.02$, $p > .05$). Accordingly, the obtained positive effect from occupational self-efficacy to job challenge was not stable across time. All remaining hypotheses corresponding to direct and indirect effects were not supported (see Table 4).

With regard to the control variables, employees who changed a job within their organization after the first measurement occasion perceived a higher level of job challenge at T2 ($\gamma = .08$, $p < .05$). Men perceived a higher level of role harmony and leader support at T2 ($\gamma = .07$, $p < .05$), whereas women perceived a higher level of role harmony and leader support at T3 ($\gamma = -.09$, $p < .01$). In addition, employees with a managerial position perceived a higher level of role harmony and leader support at T3 as compared to employees with no managerial position ($\gamma = .05$, $p < .05$). Men ($\gamma = .09$, $p < .001$) and employees who reported an intra-organizational job change after the first measurement occasion perceived a higher level of co-worker cooperation at

T2 (γ = .05, p < .01). Employees who reported a change of a leader after the first measurement occasion had a lower level of occupational self-efficacy at T2 (γ = -.08, p < .05). Women and older employees perceived a higher level of job insecurity both at T2 (γ_{gender} = -.07, p < .001; γ_{age} = .10, p < .05) and T3 (γ_{gender} = -.10, p < .05; γ_{age} = .15, p < .05). Additionally, employees who changed jobs within their organization after the first measurement occasion reported a lower level of job insecurity (γ = -.04, p < .05) and higher level of perceived internal employability at T2 (γ = .06, p < .001). Employees with a managerial position perceived a higher level of perceived internal employability at T2 as compared to employees with no managerial position (γ = .06, p < .01). Employees who changed co-workers after the second measurement occasion reported a lower level of perceived internal employability at T3 (γ = -.07, p < .05). Finally, older employees had a lower level of perceived external employability both at T2 (γ = -.12, p < .001) and at T3 (γ = -.13, p < .01).

Table 4. Cross-lagged effects corresponding to study hypotheses (longitudinal mediation model)

Cross-lagged effect	Results of the reciprocal causation model:		Cross-lagged effects pertaining to hypothesis:	Hypothesis conclusion
Direct effects	$\gamma_{T1\rightarrow T2}$	$\gamma_{T2\rightarrow T3}$		
job challenge → occupational self-efficacy	.08	.13	H_{1a}	not supported
role harmony and leader support → occupational self-efficacy	-.07	-.16	H_{1b}, H_{1c}	not supported
co-worker cooperation → occupational self-efficacy	-.02	.05	H_{1d}	not supported
occupational self-efficacy → job insecurity	-.03	-.01	H_{2a}	not supported
occupational self-efficacy → perceived internal employability	.06	-.01	H_{2b}	not supported
occupational self-efficacy → perceived external employability	.03	-.09	H_{2c}	not supported
job insecurity → occupational self-efficacy	.01	-.02	not specified	–
perceived internal employability → occupational self-efficacy	.04	.02	not specified	–
perceived external employability → occupational self-efficacy	.03	-.04	not specified	–
occupational self-efficacy → job challenge	.06*	-.02	not specified	–
occupational self-efficacy → role harmony and leader support	.02	.02	not specified	–
occupational self-efficacy → co-worker cooperation	.03	.01	not specified	–
	$\gamma_{T1\rightarrow T3}$			
job challenge → job insecurity	-.21		H_{4a}	not supported
job challenge → perceived internal employability	.11		H_{4b}	not supported
job challenge → perceived external employability	.56		H_{4c}	not supported
role harmony and leader support → job insecurity	.21		H_{6a}, H_{8a}	not supported
role harmony and leader support → perceived internal employability	-.06		H_{6b}, H_{8b}	not supported
role harmony and leader support → perceived external employability	-.51		H_{6c}, H_{8c}	not supported

co-worker cooperation → job insecurity	-.12*	H_{10a}	supported
co-worker cooperation → perceived internal employability	.05	H_{10b}	not supported
co-worker cooperation → perceived external employability	.09	H_{10c}	not supported
job insecurity → job challenge	-.02	not specified	–
job insecurity → role harmony and leader support	-.02	not specified	–
job insecurity → co-worker cooperation	-.10	not specified	–
perceived internal employability → job challenge	-.01	not specified	–
perceived internal employability → role harmony and leader support	< -.01	not specified	–
perceived internal employability → co-worker cooperation	.03	not specified	–
perceived external employability → job challenge	-.06	not specified	–
perceived external employability → role harmony and leader support	< .01	not specified	–
perceived external employability → co-worker cooperation	-.02	not specified	–
Indirect effects (via occupational self-efficacy)			
job challenge → job insecurity	< -.001	H_{3a}	not supported
job challenge → perceived internal employability	< -.01	H_{3b}	not supported
job challenge → perceived external employability	-.01	H_{3c}	not supported
role harmony and leader support → job insecurity	< .001	H_{5a}, H_{7a}	not supported
role harmony and leader support → perceived internal employability	< .01	H_{5b}, H_{7b}	not supported
role harmony and leader support → perceived external employability	.01	H_{5c}, H_{7c}	not supported
co-worker cooperation → job insecurity	< .001	H_{9a}	not supported
co-worker cooperation → perceived internal employability	< .001	H_{9b}	not supported
co-worker cooperation → perceived external employability	< .01	H_{9c}	not supported

job insecurity → job challenge	< -.001	not specified	–
job insecurity → role harmony and leader support	< .001	not specified	–
job insecurity → co-worker cooperation	< .001	not specified	–
perceived internal employability → job challenge	< -.01	not specified	–
perceived internal employability → role harmony and leader support	< .01	not specified	–
perceived internal employability → co-worker cooperation	< .01	not specified	–
perceived external employability → job challenge	< -.01	not specified	–
perceived external employability → role harmony and leader support	< .001	not specified	–
perceived external employability → co-worker cooperation	< .001	not specified	–

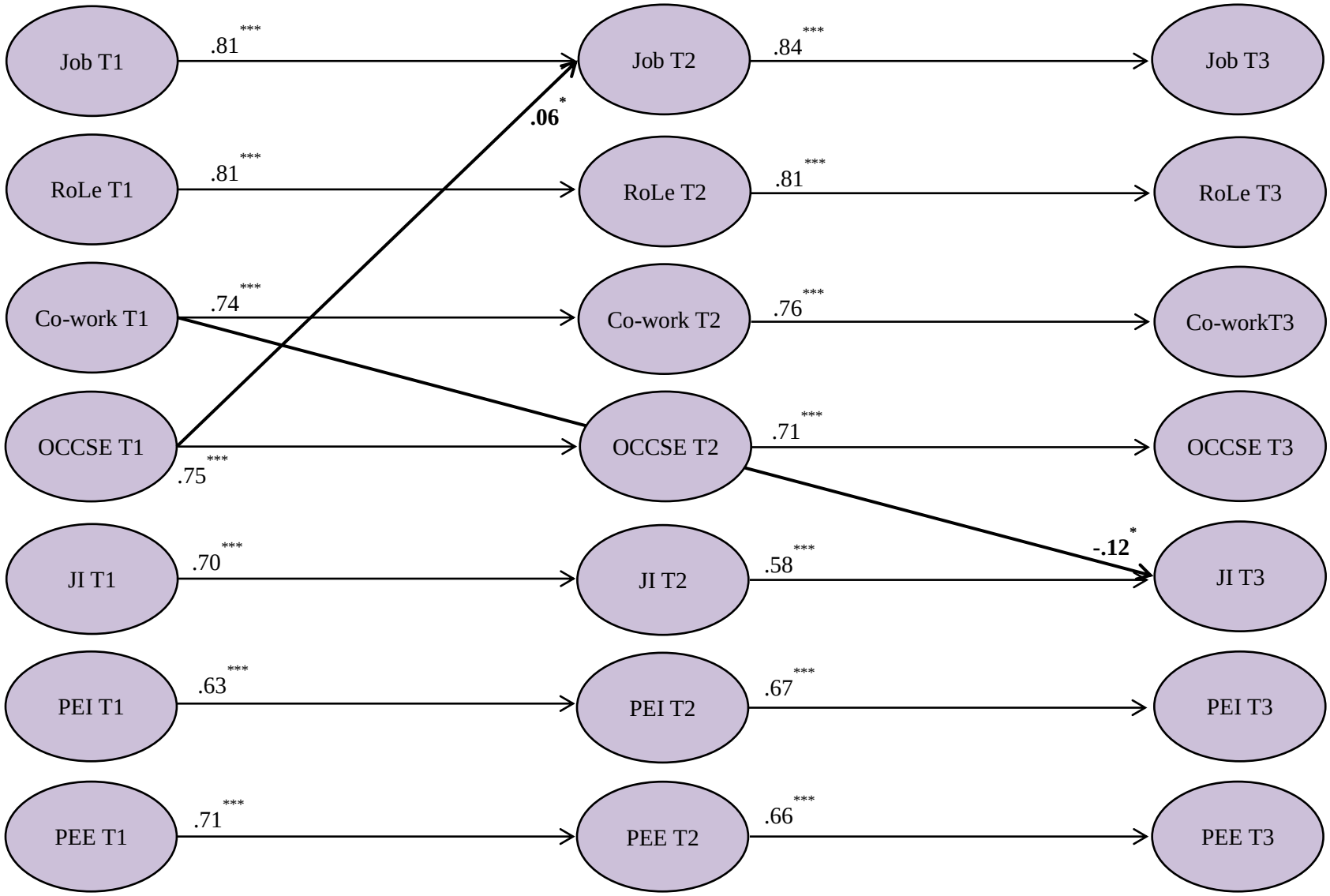

Figure 4. Structural model containing autoregressive and statistically significant cross-lagged effects corresponding to test of longitudinal mediation

Notes. Control variables, covariances between exogenous variables and between disturbances of endogenous variables are omitted due to the figure clarity. Job = Job challenge; RoLe = Role harmony and leader support; Co-work = Co-worker cooperation; OCCSE = Occupational self-efficacy; JI = Job insecurity; PEI = Perceived internal employability; PEE = Perceived external employability. $^{*}p < .05$; $^{***}p < .001$.

Psychological climate in relation to job insecurity and perceived internal/external employability: Test of longitudinal mediated moderation

Descriptive statistics

Table 5 presents the means, standard deviations and correlations between the study variables. The pattern of correlations between the psychological climate dimensions and job insecurity, perceived internal/external employability is identical to the one described on p 70. In addition, the psychological climate dimensions correlated positively with perceived control at each measurement occasion and across time. In this regard, the relations between perceived control and both job challenge and role harmony and leader support were higher (r = .40 – .54) than the relations between perceived control and co-worker cooperation (r = .26 – .34). Job insecurity correlated negatively (-.21 – -.33), whereas perceived internal employability correlated positively with perceived control (.25 – .38). Correlations between perceived external employability and perceived control were either small (.07 - .11) or non-significant. Furthermore, perceived control correlated positively with life satisfaction and negatively with mental health complaints within and between each measurement occasion. Correlations were higher with mental health complaints (-.22 – -.34) as compared to correlations with life satisfaction (.12 – .19). The psychological climate dimensions correlated positively with life satisfaction and negatively with mental health complaints at each measurement occasion and across time. In this regard, life satisfaction correlated most strongly with job challenge (.18 – .24), whereas mental health complaints correlated most strongly with role harmony and leader support (-.24 – -.45). Finally, job insecurity correlated negatively with life satisfaction and positively with mental health complaints, whereas perceived internal employability correlated positively with life satisfaction and negatively with mental health complaints at each measurement occasion and across time. For both job insecurity and perceived internal employability correlations were higher with mental health complaints (|.14 – .31|) as compared to life satisfaction (|.08 – .17|). In comparison to job insecurity and perceived internal employability, correlations between perceived external employability and the two well-being measures were smaller or non-significant (r with life satisfaction = .08 – .11; r with mental health complaints = -.06 – -.08).

Table 5. Means, standard deviations and correlations between study variables corresponding to the test of longitudinal mediated moderation (N = 3669).

	M	*SD*	1.	2.	3.	4.	5.	6.	7.
1. Job T1[a]	3.76	0.54	–						
2. Job T2[a]	3.74	0.55	.79***	–					
3. Job T3[a]	3.71	0.56	.73***	.78***	–				
4. RoLe T1[a]	3.62	0.62	.60***	.52***	.47***	–			
5. RoLe T2[a]	3.58	0.64	.49***	.64***	.52***	.76***	–		
6. RoLe T3[a]	3.56	0.62	.46***	.53***	.64***	.71***	.77***	–	
7. Co-work T1[a]	3.86	0.77	.31***	.27***	.22***	.51***	.42***	.37***	–
8. Co-work T2[a]	3.83	0.78	.25***	.36***	.28***	.44***	.52***	.40***	.70***
9. Co-work T3[a]	3.80	0.77	.24***	.27***	.32***	.42***	.44***	.49***	.67***
10. JI T1[a]	2.38	0.89	-.22***	-.21***	-.19***	-.25***	-.26***	-.24***	-.28***
11. JI T2[a]	2.30	0.86	-.18**	-.27***	-.23***	-.21***	-.30***	-.25***	-.24***
12. JI T3[a]	2.29	0.89	-.10*	-.17***	-.20***	-.14**	-.21***	-.26***	-.23***
13. PEI T1[a]	3.19	0.84	.24***	.26***	.21***	.23***	.24***	.22***	.20***
14. PEI T2[a]	3.23	0.85	.21***	.29***	.24***	.18***	.22***	.18***	.19***
15. PEI T3[a]	3.25	0.85	.17***	.24***	.30***	.17***	.21***	.27***	.17***
16. PEE T1[a]	3.65	0.82	.12**	.13**	.09*	-.03	.01	.01	.06*
17. PEE T2[a]	3.70	0.81	.13**	.14***	.08*	.02	.01	.01	.08*
18. PEE T3[a]	3.73	0.79	.10**	.10*	.09	-.03	-.02	-.02	.08*
19. Perceived control T1[a]	3.07	0.80	.53***	.47***	.44***	.50***	.45***	.42***	.32***
20. Perceived control T2[a]	3.08	0.81	.45***	.53***	.47***	.43***	.53***	.44***	.27***
21. Perceived control T3[a]	3.06	0.81	.42***	.46***	.53***	.40***	.46***	.54***	.26***
22. Life satisfaction T1[b]	5.08	1.08	.24***	.25***	.19***	.18***	.18***	.16***	.10***
23. Life satisfaction T2[b]	5.09	1.08	.19***	.25***	.19***	.15***	.20***	.17***	.09**
24. Life satisfaction T2[b]	5.11	1.05	.18***	.20***	.21***	.12***	.15***	.18***	.07*
25. MH complaints T1[c]	2.13	1.01	-.28***	-.27***	-.24***	-.45***	-.39***	-.36***	-.28***
26. MH complaints T2[c]	2.17	1.00	-.23***	-.32***	-.29***	-.34***	-.44***	-.38***	-.18***
27. MH complaints T3[c]	2.16	0.99	-.18***	-.27***	-.30***	-.32***	-.39***	-.46***	-.17***

	8.	9.	10.	11.	12.	13.	14.	15.	16.
1. Job T1[a]									
2. Job T2[a]									
3. Job T3[a]									
4. RoLe T1[a]									
5. RoLe T2[a]									
6. RoLe T3[a]									
7. Co-work T1[a]									
8. Co-work T2[a]	–								
9. Co-work T3[a]	.74***	–							
10. JI T1[a]	-.25***	-.30***	–						
11. JI T2[a]	-.33***	-.33***	.70***	–					
12. JI T3[a]	-.26***	-.29***	.62***	.63***	–				
13. PEI T1[a]	.18***	.20***	-.37***	-.33***	-.34***	–			
14. PEI T2[a]	.24***	.21***	-.29***	-.36***	-.31***	.60***	–		
15. PEI T3[a]	.22***	.22***	-.30***	-.30***	-.39***	.56***	.64***	–	
16. PEE T1[a]	.07*	.09***	-.35***	-.34***	-.35***	.42***	.34***	.30***	–
17. PEE T2[a]	.09*	.12***	-.32***	-.37***	-.35***	.36***	.46***	.35***	.72***
18. PEE T3[a]	.09*	.10**	-.31***	-.32***	-.41***	.32***	.37***	.44***	.69***
19. Perceived control T1[a]	.29***	.30***	-.31***	-.24***	-.21***	.33***	.25***	.29***	.08*
20. Perceived control T2[a]	.34***	.28***	-.25***	-.31***	-.24***	.30***	.35***	.31***	.07*
21. Perceived control T3[a]	.28***	.32***	-.25***	-.26***	-.33***	.29***	.28***	.38***	.07*
22. Life satisfaction T1[b]	.10**	.13**	-.14***	-.12***	-.12***	.17***	.13***	.10**	.11***
23. Life satisfaction T2[b]	.13***	.12**	-.11***	-.12***	-.12***	.13***	.14***	.11**	.10***
24. Life satisfaction T3[b]	.09**	.11**	-.11**	-.08**	-.12***	.11**	.10***	.09**	.10**
25. MH complaints T1[c]	-.25***	-.27***	.30***	.27***	.26***	-.22***	-.15***	-.14***	-.03
26. MH complaints T2[c]	-.25***	-.22***	.26***	.30***	.25***	-.19***	-.17***	-.15***	-.07*
27. MH complaints T3[c]	-.23***	-.29***	.29***	.31***	.33***	-.23***	-.17***	-.20***	-.08**

	17.	18.	19.	20.	21.	22.	23.	24.	25.	26.
1. Job T1[a]										
2. Job T2[a]										
3. Job T3[a]										
4. RoLe T1[a]										
5. RoLe T2[a]										
6. RoLe T3[a]										
7. Co-work T1[a]										
8. Co-work T2[a]										
9. Co-work T3[a]										
10. JI T1[a]										
11. JI T2[a]										
12. JI T3[a]										
13. PEI T1[a]										
14. PEI T2[a]										
15. PEI T3[a]										
16. PEE T1[a]										
17. PEE T2[a]	–									
18. PEE T3[a]	.73***	–								
19. Perceived control T1[a]	.08	.03	–							
20. Perceived control T2[a]	.11**	.05	.59***	–						
21. Perceived control T3[a]	.08*	.07*	.58***	.66***	–					
22. Life satisfaction T1[b]	.08*	.09**	.18***	.16***	.13***	–				
23. Life satisfaction T2[b]	.10***	.11**	.15***	.19***	.15***	.73***	–			
24. Life satisfaction T3[b]	.09***	.11**	.12***	.14***	.14***	.70***	.79***	–		
25. MH complaints T1[c]	-.04	-.04	-.33***	-.24***	-.22***	-.29***	-.24***	-.20***	–	
26. MH complaints T2[c]	-.08*	-.06	-.25***	-.32***	-.29***	-.25***	-.31***	-.24***	.64***	–
27. MH complaints T3[c]	-.06*	-.06*	-.26***	-.24***	-.34***	-.25***	-.28***	-.26***	.64***	.70***

Notes. Values were estimated using FIML approach. [a] Scale from 1 (lowest) to 5 (highest). [b] Scale from 1 (lowest) to 7 (highest). [c] Scale from 0 (lowest) to 6 (highest). Job = Job challenge; RoLe = Role harmony and leader support; Co-work = Co-worker cooperation; JI = Job insecurity; PEI = Perceived internal employability; PEE = Perceived external employability; MH complaints = mental health complaints. * $p < .05$; ** $p < .01$; *** $p < .001$.

Measurement models

The hypothesized 10-factor measurement model fitted the data reasonably well in all three measurement occasions (T1: $\chi^2(548) = 2939.96$, $p < .001$, CFI = .93, RMSEA = .05, SRMR = .04; T2: $\chi^2(548) = 2519.29$, $p < .001$, CFI = .95, RMSEA = .04, SRMR = .04; T3: $\chi^2(548) = 2451.21$, $p < .001$, CFI = .94, RMSEA = .05, SRMR = .04). With regards to the model parameters, all indicators were significantly and positively related to the corresponding latent factor (standardized regression weights ranged from .53 to .94 at T1; from .56 to .94 at T2; and from .56 to .94 at T3). However, as previously described, the justifiability of conceptual differentiation of two psychological climate dimensions (role harmony and leader support) was severely challenged by exceptionally high correlations between these two factors obtained at each measurement occasion: .94 at T1; .88 at T2 and .90 at T3. Accordingly, we respecified the model once again by collapsing indicators of these two factors into a single factor called role harmony and leader support. The overall fit of the resulting 9-factor measurement model was reasonable at each measurement occasion (T1: $\chi^2(557) = 3065.30$, $p < .001$, CFI = .93, RMSEA = .05, SRMR = .04; T2: $\chi^2(557) = 2725.92$, $p < .001$, CFI = .94, RMSEA = .05, SRMR = .04; T3: $\chi^2(557) = 2586.44$, $p < .001$, CFI = .94, RMSEA = .05, SRMR = .04). All indicators loaded significantly and positively to the corresponding factor with standardized regression weights ranging from .54 to .94 at T1; .from 57 to .94 at T2; and from .56 to .94 at T3. Importantly, none of the correlations between the factors exceeded the value .85, providing support for the discriminant validity of 9 factors (statistically significant correlations ranged from |07-.79| at T1; |.08-.82| at T2 and |.09-.82| at T3). Each of the tested measurement models included correlations specified between two indicators loading on mental health complaints: “How much of the time, during the last month, have you felt downhearted and blue?” and “ How much of the time, during the last month, have you felt so down in the dumps that nothing could cheer you up?”. The correlation between these two items in the finally accepted models equaled .47 at T1; .44 at T2 and .44 at T3.

Factorial invariance

To examine the factorial invariance across time, we compared the unconstrained (M0) and constrained stability model (M1). Each of these two models combined the 9-factor measurement model (with factors job challenge, role harmony and leader support, co-worker cooperation, job insecurity, perceived internal employability, perceived external employability, peeved control, life satisfaction and mental health complaints) specified at T1, T2 and T3[10]. As presented in Table 6, constraining all factor loadings equal across time did not result in a statistically significant degradation of the model fit ($\Delta\chi^2 = 62.67$, $\Delta df = 54$, $p > .05$). Accordingly, we found full factor factorial invariance across three measurement occasions. Additionally, M1 fitted the data reasonably well ($\chi^2(5487) = 13122.52$, $p < .001$, CFI = .94, RMSEA = .02, SRMR = .06), providing empirical support for the tests of the cross-lagged effects as described in the following paragraphs.

[10] Including the correlations between two items loading on mental health complaints (see above).

Table 6. Tests of factorial invariance across T1, T2 and T3 and cross-lagged lagged relationships.

Model	χ^2	*df*	SRMR	CFI	RMSEA	Δ Model	Sattora-Bentler corrected $\Delta\chi^2$	Δ*df*
Tests of factorial invariance across T1, T2 and T3								
M0 Unconstrained model	13070.72***	5433	.06	.94	.02	–		
M1 Constrained model	13122.52***	5487	.06	.94	.02	M1 – M0	62.67	54
Tests of cross-lagged relationships								
S0 Stability model	35721.52***	17504	.04	.92	.02	–		
S1 Normal causation model	35620.36***	17471	.04	.92	.02	S1 – S0	102.71***	33
S3 Reciprocal causation model	35563.33***	17443	.04	.92	.02	S3 – S0	158.19***	61
						S3 – S1	57.03**	28

Notes. ** $p < .01$; *** $p < .001$.

Structural models

The results of the preliminary analyses of the separately tested latent interaction effects are presented in Table 7. Among all tested interactions, the following ones were significant. Role harmony at T1 moderated the cross-lagged effect from job insecurity at T1 to mental health complaints at T3 ($\gamma = .11$, $p < .05$). As a main effect, employees who perceived a higher level of job insecurity at T1 reported more mental health complaints at T3 ($\gamma = .10$, $p < .05$), whereas the direct cross-lagged effect from role harmony and leader support at T1 on mental health complaints at T3 was non-significant ($\gamma = -.13$, $p > .05$). The moderating effect is presented in Figure 5. Contrary to our expectations, role harmony and leader support at T1 amplified the negative cross-lagged effect from job insecurity T1 to mental health complaints at T3: the increase in mental health complaints was greater among employees who perceived high (versus low) role harmony and leader support.

Furthermore, role harmony and leader support at T1 moderated the cross-lagged effect from perceived internal employability at T1 to perceived control at T2. As a main effect, employees with higher perceived internal employability at T1 perceived more control at T2 ($\gamma = .10$, $p < .05$), whereas the direct cross-lagged effect from role harmony and leader support at T1 on perceived control at T2 was non-significant ($\gamma = .06$, $p > .05$). As presented in Figure 6, the moderating effect aligns with our expectations. Role harmony and leader support at T1 amplified the positive cross-lagged effect from perceived internal employability at T1 to perceived control at T2. More specifically, the increase in perceived control was greater among employees who had a more positive perception of role harmony and leader support.

A significant effect was also found from the interaction between role harmony and leader support and perceived internal employability at T1 on mental health at T3 ($\gamma = -.10$, $p < .05$). Perceived internal employability at T1 had a negative cross-lagged effect on mental health complaints at T3 ($\gamma = -.10$, $p < .05$), whereas the direct effect from role harmony and leader support at T1 on mental health complaints at T3 was non-significant ($\gamma = -.14$, $p > .05$). In line with our expectation, role harmony and leader support amplified the negative cross-lagged effect from perceived internal employability at T1 to mental health complaints at T3. This amplifying effect is evident in a greater decrease in mental health complaints across time among employees who had a more positive perception of role harmony and leader support at T1 (see Figure 7).

Furthermore, co-worker cooperation at T2 moderated the effect from perceived internal employability at T2 to perceived control at T3 ($\gamma = .06$, $p > .05$). With regards to main effects, neither perceived internal employability, nor co-worker cooperation at T2 had a significant cross-lagged effect on perceived control at T3 ($\gamma = .08$, $p > .05$; $\gamma = .001$, $p > .05$, respectively). However, as presented in Figure 8, the positive cross-lagged effect from perceived internal employability at T2 to perceived control at T3 was evident among employees who perceived high (versus low) co-worker support at T2. This amplifying effect of co-worker cooperation supports our expectations.

Finally, co-worker cooperation at T1 moderated the cross-lagged effect from perceived internal employability at T1 to mental health complaints at T3 ($\gamma = -.08$, $p < .05$). As previously described, employees with a higher level of perceived internal employability at T1 reported less mental health complaints at T3 ($\gamma = -.10$, $p < .05$). In contrast, co-worker cooperation at T1 did not predict a change in mental health complaints at T3 ($\gamma = .03$, $p > .05$). In line with our expectations, co-worker support at T1 amplified the negative effect from perceived internal employability at T1 to mental health complaints at T3 in that the decrease in mental health complaints was stronger among employees perceiving high (versus low) cooperation among their co-workers (see Figure 9).

Table 7. Results of the separately tested latent interaction effects

Hypothesized interaction effect	γ^{a}	Results of the model fit				
		χ^2	*df*	SRMR	CFI	RMSEA
job challenge × job insecurity[b]		18351.09***	8588	.05	.94	.02
→ perceived control	< -.01 / -.05					
→ life satisfaction	-.01					
→ mental health complaints	.09					
role harmony and leader support × job insecurity		22059.52***	10802	.04	.94	.02
→ perceived control	-.01 / -.04					
→ life satisfaction	-.01					
→ mental health complaints	.11*					
co-worker cooperation × job insecurity		22778.20***	12006	.04	.95	.02
→ perceived control	-.03 / -.04					
→ life satisfaction	.01					
→ mental health complaints	.05					
job challenge × perceived internal employability		19140.68***	9654	.05	.93	.02
→ perceived control	.06 / .09					
→ life satisfaction	-.01					
→ mental health complaints	-.06					
role harmony and leader support × perceived internal employability		21423.62***	10802	.04	.94	.02
→ perceived control	.07** / -.01					
→ life satisfaction	.03					
→ mental health complaints	-.10*					
co-worker cooperation × perceived internal employability		22538.01***	12006	.04	.94	.02
→ perceived control	.02 / .09**					
→ life satisfaction	-.05					
→ mental health complaints	-.08*					
job challenge × perceived external employability		19785.05***	9654	.05	.94	.02
→ perceived control	-.03 / -.03					

→ life satisfaction	.02					
→ mental health complaints	< .01					
role harmony and leader support × perceived external employability		21610.30***	10802	.04	.94	.02
→ perceived control	< .001 / .001					
→ life satisfaction	< .001					
→ mental health complaints	-.02					
co-worker cooperation × perceived external employability		22957.31***	12006	.04	.95	.02
→ perceived control	.01 / .04					
→ life satisfaction	-.03					
→ mental health complaints	.02					

Notes. [a] If two values are reported, the first one corresponds to the effect from T1 to T2 construct and the second one corresponds to the effect from T2 to T3 construct. If one value is reported, it corresponds to the effect from T1 to T3 construct.

[b] The results reported for the model including the interaction between job challenge and job insecurity had to be obtained without several control variables (i.e., organizational tenure, contract, managerial position and 6 intra-organizational change variables) as their inclusion produces the not positive definite latent variable covariance matrix. This problem was not replicated for any other tested model. ** $p < .01$; *** $p < .001$.

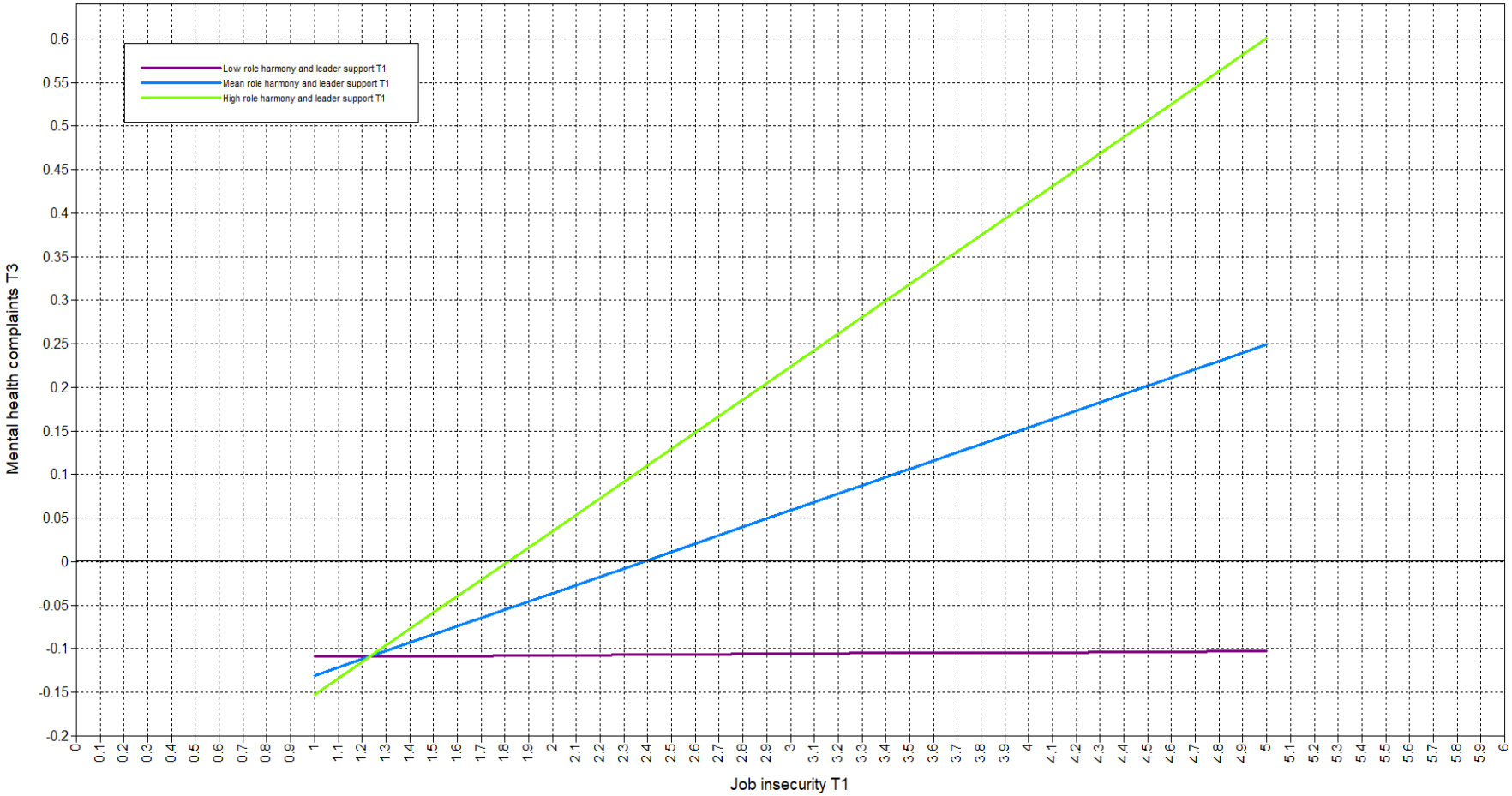

Figure 5. The moderating effect of role harmony and leader support (T1) on the cross-lagged effect from job insecurity (T1) to mental health complaints (T3) (result of a separate test of interaction effects)

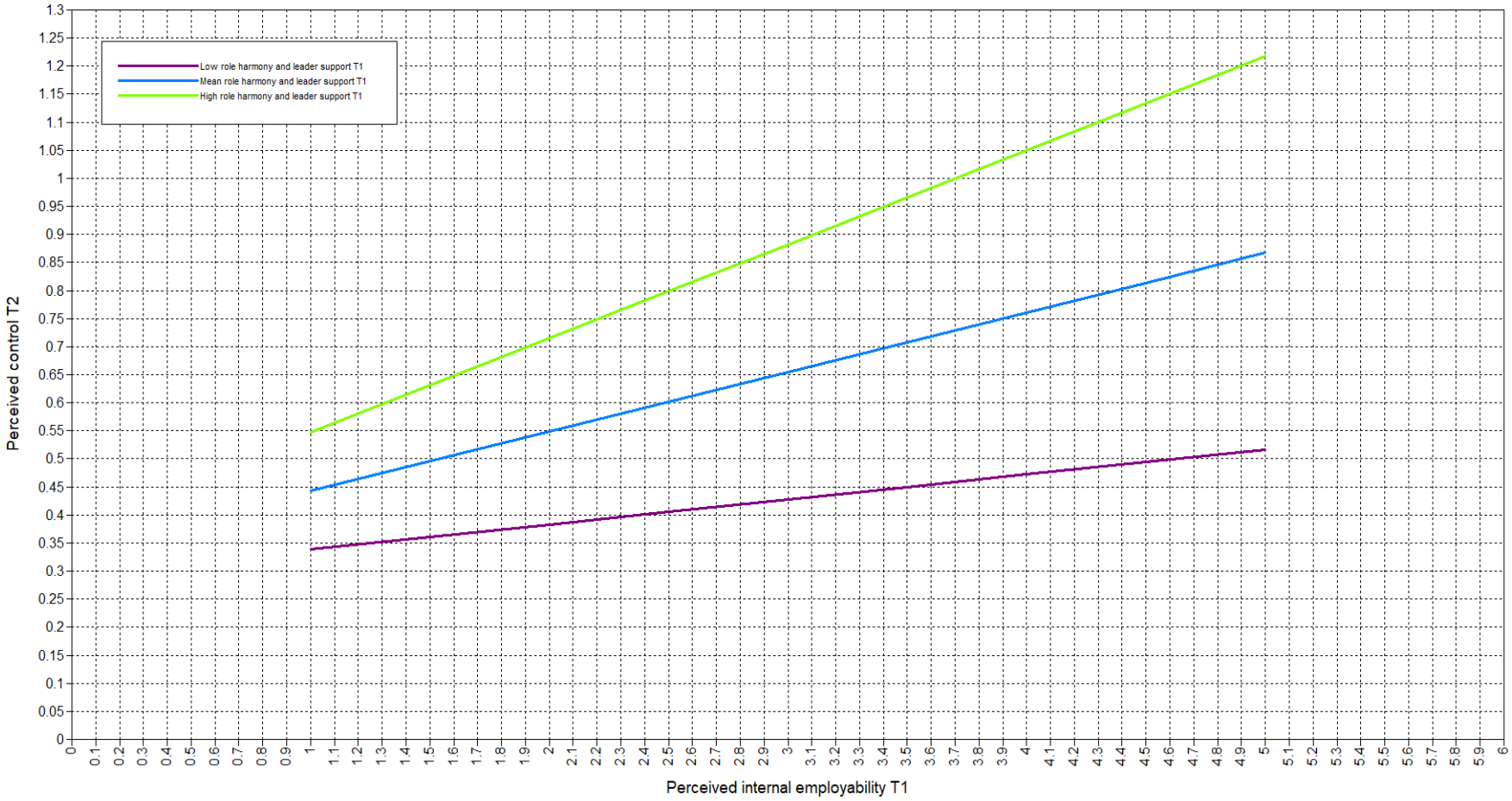

Figure 6. The moderating effect of role harmony and leader support (T1) on the cross-lagged effect from perceived internal employability (T1) to perceived control (T2) (result of a separate test of interaction effects)

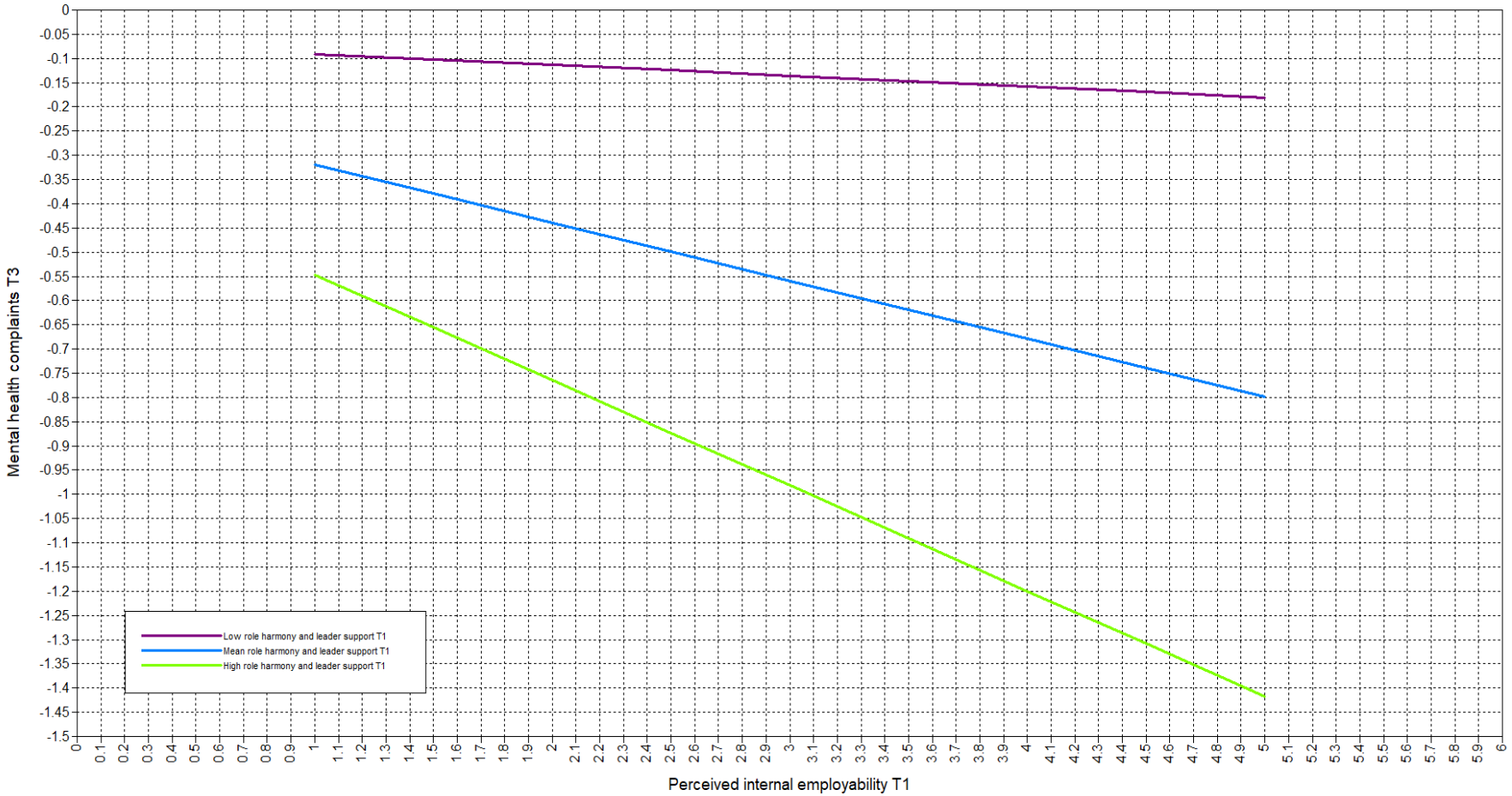

Figure 7. The moderating effect of role harmony and leader support (T1) on the cross-lagged effect from perceived internal employability (T1) to mental health complaints (T3) (result of a separate test of interaction effects)

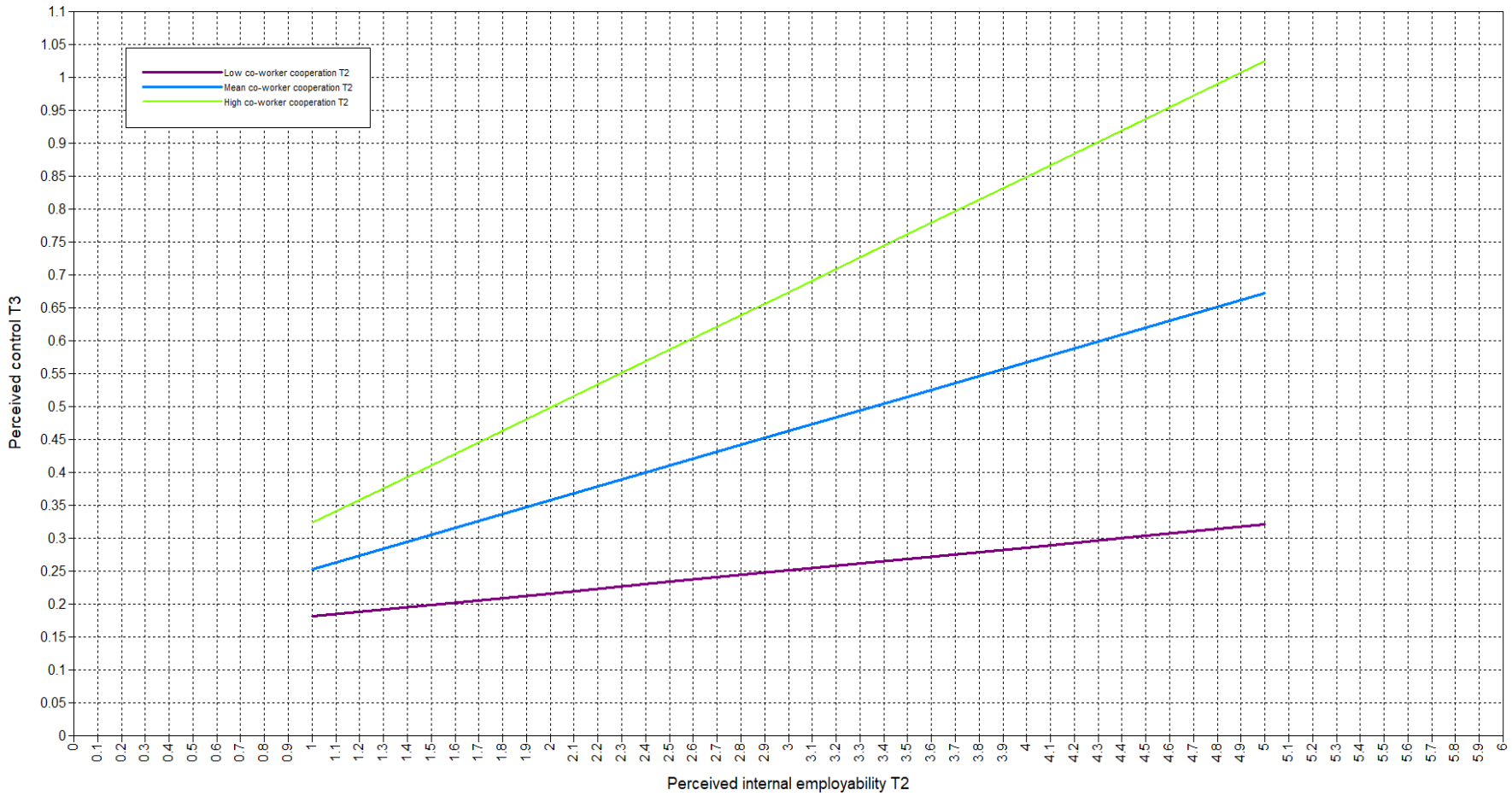

Figure 8. The moderating effect of co-worker cooperation (T2) on the cross-lagged effect from perceived internal employability (T2) to perceived control (T3) (result of a separate test of interaction effects)

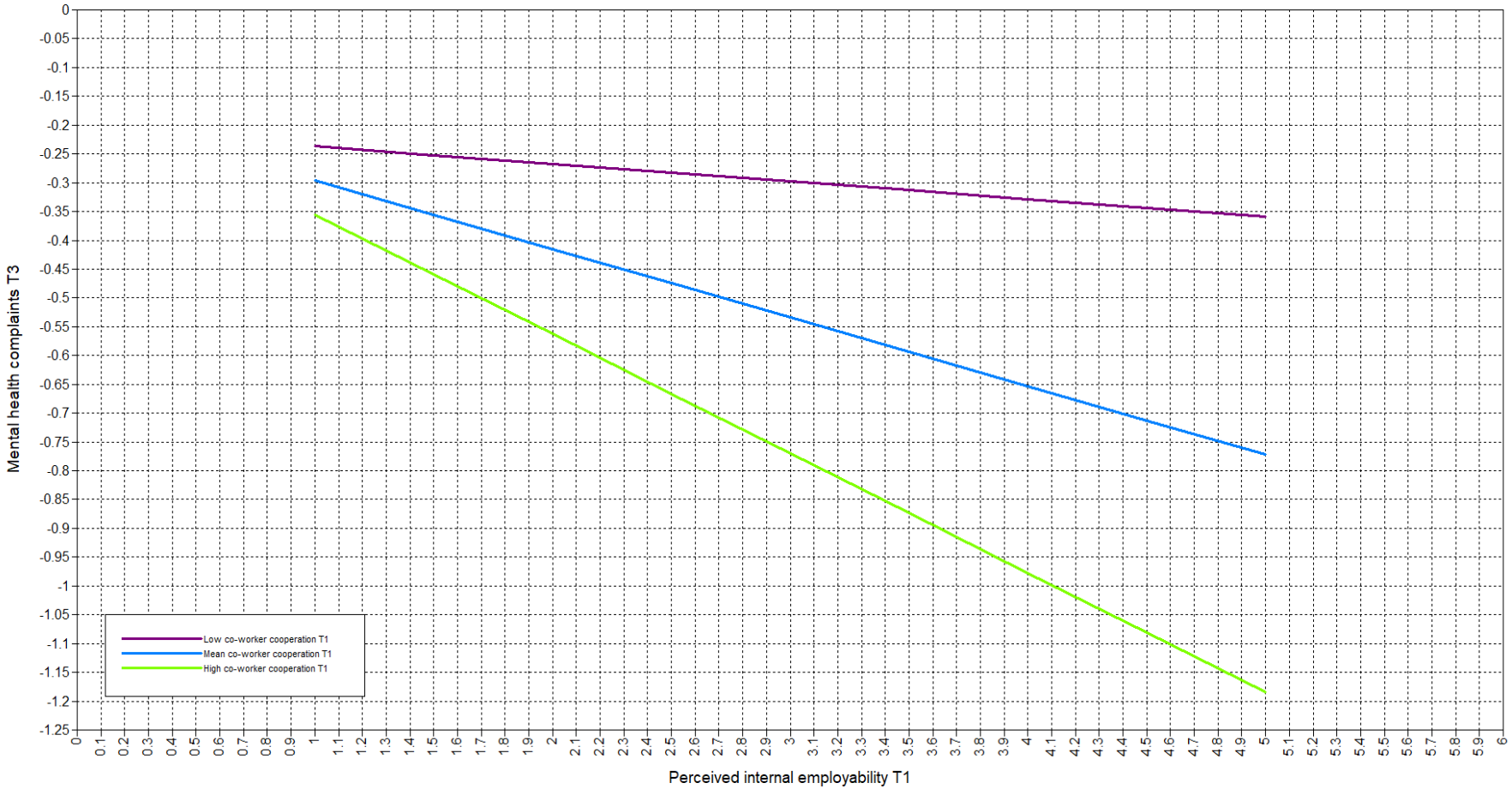

Figure 9. The moderating effect of co-worker cooperation (T1) on the cross-lagged effect from perceived internal employability (T1) to mental health complaints (T3) (result of a separate test of interaction effects)

The presented latent interactions, that significantly predicted the outcome of interest when tested separately, were included in the stability (S0), normal causation (S1) and reciprocal causation model (S2). By doing so, we simultaneously examined the moderating effects of the psychological climate dimensions, a test that provides a more robust examination of the *unique* moderating effects that each dimension exerts after controlling for the other moderators (Little, 2013). As presented in Table 6, both normal and reciprocal causation model significantly improved the model fit of the stability model ($\Delta\chi^2$ = 102.71, Δdf = 33, $p < .001$ and $\Delta\chi^2$ = 158.19, Δdf = 61, $p < .001$, respectively). Additionally, the reciprocal causation model fitted the data significantly better than the normal causation model ($\Delta\chi^2$ = 57.03, Δdf = 28, $p < .01$). Accordingly, all cross-lagged effects from the reciprocal causation model with corresponding conclusions about the study hypotheses are presented in Table 8, whereas Figure 10 depicts only the significant cross-lagged effects.

With regards to normal causation, we found that job challenge at T2 had a positive cross-lagged effect on perceived control at T3 (γ =.42, $p < .05$), an effect that was not found between T1 and T2 (γ =.11, $p > .05$). The finding that a higher level of job challenge was related with an increase in perceived control at the subsequent measurement occasion provided partial support for H_{11a}, as the effect was not stable across time. Furthermore, perceived internal employability at T1 had a positive cross-lagged effect on perceived control at T2 (γ =.10, $p < .01$), demonstrating that a higher perceived chance of a new job within one's current organization was related with an increase in perceived control at the subsequent measurement occasion. This effects was however not replicated between T2 and T3, indicating its instability across time (γ =.06, $p > .05$). Accordingly, H_{12b} was partially supported. In contrast to H_{12c}, perceived external employability at T1 and T2 related negatively to perceived control at T2 (γ = -.10, $p < .05$) and T3 (γ = -.11, $p < .05$), respectively. Therefore, contrary to our expectations, a higher perceived chance of a new job at the external labor market was related with a decrease in perceived control within one's current organization at the subsequent measurement occasions. With regards to the cross-lagged effects from T1 to T3 variables, we found that a higher level of job insecurity was related with an increase in mental health complaints (γ = .09, $p < .05$), providing support for H_{24a}. Furthermore, in line with H_{24b}, we found a negative cross-lagged effect from perceived internal employability at T1 to mental health complaints at T3 (γ = -.10, $p < .05$), demonstrating

that higher perceived chances of a job at the internal labor market was related with a subsequent decrease in employees' mental health complaints.

Furthermore, among the tested cross-lagged moderations, the following two remained significant, i.e., had unique effect after being controlled for the other moderators. First, we found that role harmony and leader support at T1 amplified the positive cross-lagged effect from perceived internal employability at T1 to perceived control at T2 ($\gamma = .06$, $p < .05$) (see Figure 11). In other words, the increase in perceived control that resulted from perceived internal employability was greater among employees who had a more positive perception of role harmony and leader support. However, as this effect was not found from T2 to T3 (see the results about separate test of interaction effects above), H_{14b} and H_{14c} were partially supported. Additionally, we found that co-worker cooperation at T2 moderated the cross-lagged effect from perceived internal employability at T2 to perceived control at T3 ($\gamma = .08$, $p < .01$): this effect was positive and stronger among employees perceiving higher (versus lower) cooperation among co-workers at T2 (see Figure 12). Again, this effect was not found from T1 to T2 (see the results about separate test of interaction effects above). Accordingly, H_{14d} was partially supported.

With regards to the tested reversed relationships, we found that mental health complaints at T1 had a positive cross-lagged effect on perceived control at T2 ($\gamma = .08$, $p < .05$), suggesting that more mental health complaints led to increase in perceived control at the subsequent measurement occasion. This counter-intuitive effect, however, changed in sign between T2 and T3 when higher mental health complaints were expectedly related with a decrease in subsequent level of perceived control ($\gamma = -.08$, $p < .05$). Furthermore, we found that perceived control at T2 had a negative cross-lagged effect on perceived external employability at T3 ($\gamma = -.07$, $p < .01$). This effect that was not found between T1 and T2 ($\gamma = .03$, $p > .05$). In addition, perceived control at T1 had a positive cross-lagged effect on role harmony and leader support at T2 ($\gamma = .09$, $p < .01$), suggesting that higher level of perceived control led to a more positive perception of one's work role and leader at the subsequent measurement occasion. However, this effect was not stable across time ($\gamma = .01$, $p > .05$). Finally, we also found a reverse positive cross-lagged effect from mental health complaints at T1 on job insecurity at T3 ($\gamma = .10$, $p < .01$). Accounting for the previously reported oppositely directed positive cross-lagged effect from job insecurity at T1 to mental health complaints at T3, this finding hints at a circle where job insecurity leads to

more mental health complaints, and vice versa, mental health complaints leading to more job insecurity after a one-year period.

Table 8. Table with cross-lagged effects corresponding to study hypotheses (longitudinal mediated moderation model)

Cross-lagged effect	Results of the reciprocal causation model:		Cross-lagged effects pertaining to hypothesis:	Hypothesis conclusion
Direct effects	$\gamma_{T1\rightarrow T2}$	$\gamma_{T2\rightarrow T3}$		
job challenge → perceived control	.11	.42*	H_{11a}	partially supported
role harmony and leader support → perceived control	.13	-.19	$H_{11b,}$ H_{11c}	not supported
co-worker cooperation → perceived control	.01	.01	H_{11d}	not supported
job insecurity → perceived control	-.05	.003	H_{12a}	not supported
perceived internal employability → perceived control	.10**	.06	H_{12b}	partially supported
perceived external employability → perceived control	-.10*	-.11*	H_{12c}	not supported
job challenge × job insecurity → perceived control	not included	not included	H_{13a}	not supported
role harmony and leader support × job insecurity → perceived control	not included	not included	H_{13b}, H_{13c}	not supported
co-worker cooperation × job insecurity → perceived control	not included	not included	H_{13d}	not supported
job challenge × perceived internal employability → perceived control	not included	not included	H_{14a}	not supported
role harmony and leader support × perceived internal employability → perceived control	.06*	not included	H_{14b}, H_{14c}	partially supported
co-worker cooperation × perceived internal employability → perceived control	not included	.08**	H_{14d}	partially supported
job challenge × perceived external employability → perceived control	not included	not included	H_{15a}	not supported
role harmony and leader support × perceived external employability → perceived control	not included	not included	H_{15b}, H_{15c}	not supported
co-worker cooperation × perceived external employability → perceived control	not included	not included	H_{15d}	not supported
perceived control → life satisfaction	.001	-.03	H_{16a}	not supported
perceived control → mental health complaints	-.02	.11	H_{16b}	not supported
life satisfaction → perceived control	-.001	-.04	not specified	
mental health complaints → perceived control	.08*	-.08*	not specified	

perceived control → job insecurity	-.04	-.03	not specified	
perceived control → perceived internal employability	.06	.09	not specified	
perceived control → perceived external employability	.03	-.07**	not specified	
perceived control → job challenge	.08	.03	not specified	
perceived control → role harmony and leader support	.09**	.01	not specified	
perceived control → co-worker cooperation	.04	-.03	not specified	
	$\gamma_{T1 \rightarrow T3}$			
job challenge → life satisfaction	.04		H_{18a}	not supported
role harmony and leader support → life satisfaction	-.02		H_{18b}, H_{18c}	not supported
co-worker cooperation → life satisfaction	.002		H_{18d}	not supported
job challenge → mental health complaints	.06		H_{20a}	not supported
role harmony and leader support → mental health complaints	-.12		H_{20b}, H_{20c}	not supported
co-worker cooperation → mental health complaints	.04		H_{20d}	not supported
job insecurity → life satisfaction	-.01		H_{22a}	not supported
perceived internal employability → life satisfaction	-.02		H_{22b}	not supported
perceived external employability → life satisfaction	.01		H_{22c}	not supported
job insecurity → mental health complaints	.09*		H_{24a}	supported
perceived internal employability → mental health complaints	-.10*		H_{24b}	supported
perceived external employability → mental health complaints	.05		H_{24c}	not supported
job challenge × job insecurity → life satisfaction	not included		H_{26a}	not supported
role harmony and leader support × job insecurity → life satisfaction	not included		H_{26b}, H_{26c}	not supported
co-worker cooperation × job insecurity → life satisfaction	not included		H_{26d}	not supported

job challenge × job insecurity → mental health complaints	not included	H_{28a}	not supported
role harmony and leader support × job insecurity → mental health complaints	.12	H_{28b}, H_{28c}	not supported
co-worker cooperation × job insecurity → mental health complaints	not included	H_{28d}	not supported
job challenge × perceived internal employability → life satisfaction	not included	H_{30a}	not supported
role harmony and leader support × perceived internal employability → life satisfaction	not included	H_{30b}, H_{30c}	not supported
co-worker cooperation × perceived internal employability → life satisfaction	not included	H_{30d}	not supported
job challenge × perceived internal employability → mental health complaints	not included	H_{32a}	not supported
role harmony and leader support × perceived internal employability → mental health complaints	.03	H_{32b}, H_{32c}	not supported
co-worker cooperation × perceived internal employability → mental health complaints	-.07	H_{32d}	not supported
job challenge × perceived external employability → life satisfaction	not included	H_{34a}	not supported
role harmony and leader support × perceived external employability → life satisfaction	not included	H_{34b}, H_{34c}	not supported
co-worker cooperation × perceived external employability → life satisfaction	not included	H_{34d}	not supported
job challenge × perceived external employability → mental health complaints	not included	H_{36a}	not supported
role harmony and leader support × perceived external employability → mental health complaints	not included	H_{36b}, H_{36c}	not supported
co-worker cooperation × perceived external employability → mental health complaints	not included	H_{36d}	not supported
life satisfaction → job insecurity	-.03	not specified	–
life satisfaction → perceived internal employability	.01	not specified	–
life satisfaction → perceived external employability	.04	not specified	–
mental health complaints → job insecurity	$.10^{**}$	not specified	–
mental health complaints → perceived internal employability	-.03	not specified	–
mental health complaints → perceived external employability	-.03	not specified	–

life satisfaction → job challenge	-.03	not specified	–
life satisfaction → role harmony and leader support	-.03	not specified	–
life satisfaction → co-worker cooperation	.03	not specified	–
mental health complaints → job challenge	-.05	not specified	–
mental health complaints → role harmony and leader support	-.10	not specified	–
mental health complaints → co-worker cooperation	-.09	not specified	–
Indirect effects (via perceived control)			
job challenge → life satisfaction	<-.01	H_{17a}	not supported
role harmony and leader support → life satisfaction	<-.01	H_{17b}, H_{17c}	not supported
co-worker cooperation → life satisfaction	<.001	H_{17d}	not supported
job challenge → mental health complaints	.01	H_{20a}	not supported
role harmony and leader support → mental health complaints	.01	H_{20b}, H_{20c}	not supported
co-worker cooperation → mental health complaints	<.01	H_{20d}	not supported
job insecurity → life satisfaction	<.01	H_{21a}	not supported
perceived internal employability → life satisfaction	<-.01	H_{21b}	not supported
perceived external employability → life satisfaction	<.01	H_{21c}	not supported
job insecurity → mental health complaints	<-.01	H_{23a}	not supported
perceived internal employability → mental health complaints	.01	H_{23b}	not supported
perceived external employability → mental health complaints	-.01	H_{23c}	not supported
job challenge × job insecurity → life satisfaction	not included	H_{25a}	not supported
role harmony and leader support × job insecurity → life satisfaction	not included	H_{25b}, H_{25c}	not supported
co-worker cooperation × job insecurity → life satisfaction	not included	H_{25d}	not supported

job challenge × job insecurity → mental health complaints	not included	H_{27a}	not supported
role harmony and leader support × job insecurity → mental health complaints	not included	H_{27b}, H_{27c}	not supported
co-worker cooperation × job insecurity → mental health complaints	not included	H_{27d}	not supported
job challenge × perceived internal employability → life satisfaction	not included	H_{29a}	not supported
role harmony and leader support × perceived internal employability → life satisfaction	<-.01	H_{29b}, H_{29c}	not supported
co-worker cooperation × perceived internal employability → life satisfaction	not included	H_{29d}	not supported
job challenge × perceived internal employability → mental health complaints	not included	H_{31a}	not supported
role harmony and leader support × perceived internal employability → mental health complaints	<.01	H_{31b}, H_{31c}	not supported
co-worker cooperation × perceived internal employability → mental health complaints	not included	H_{31d}	not supported
job challenge × perceived external employability → life satisfaction	not included	H_{33a}	not supported
role harmony and leader support × perceived external employability → life satisfaction	not included	H_{33b}, H_{33c}	not supported
co-worker cooperation × perceived external employability → life satisfaction	not included	H_{33d}	not supported
job challenge × perceived external employability → mental health complaints	not included	H_{35a}	not supported
role harmony and leader support × perceived external employability → mental health complaints	not included	H_{35b}, H_{35c}	not supported
co-worker cooperation × perceived external employability → mental health complaints	not included	H_{35d}	not supported
life satisfaction → job insecurity	<.001	not specified	–
life satisfaction → perceived internal employability	<.001	not specified	–
life satisfaction → perceived external employability	<.001	not specified	–
mental health complaints → job insecurity	<-.01	not specified	–
mental health complaints → perceived internal employability	<.01	not specified	–
mental health complaints → perceived external employability	<-.01	not specified	–
life satisfaction → job challenge	<.001	not specified	–

life satisfaction → role harmony and leader support	<.001	not specified	–
life satisfaction → co-worker cooperation	<.001	not specified	–
mental health complaints → job challenge	<.01	not specified	–
mental health complaints → role harmony and leader support	<.01	not specified	–
mental health complaints → co-worker cooperation	<-.01	not specified	–

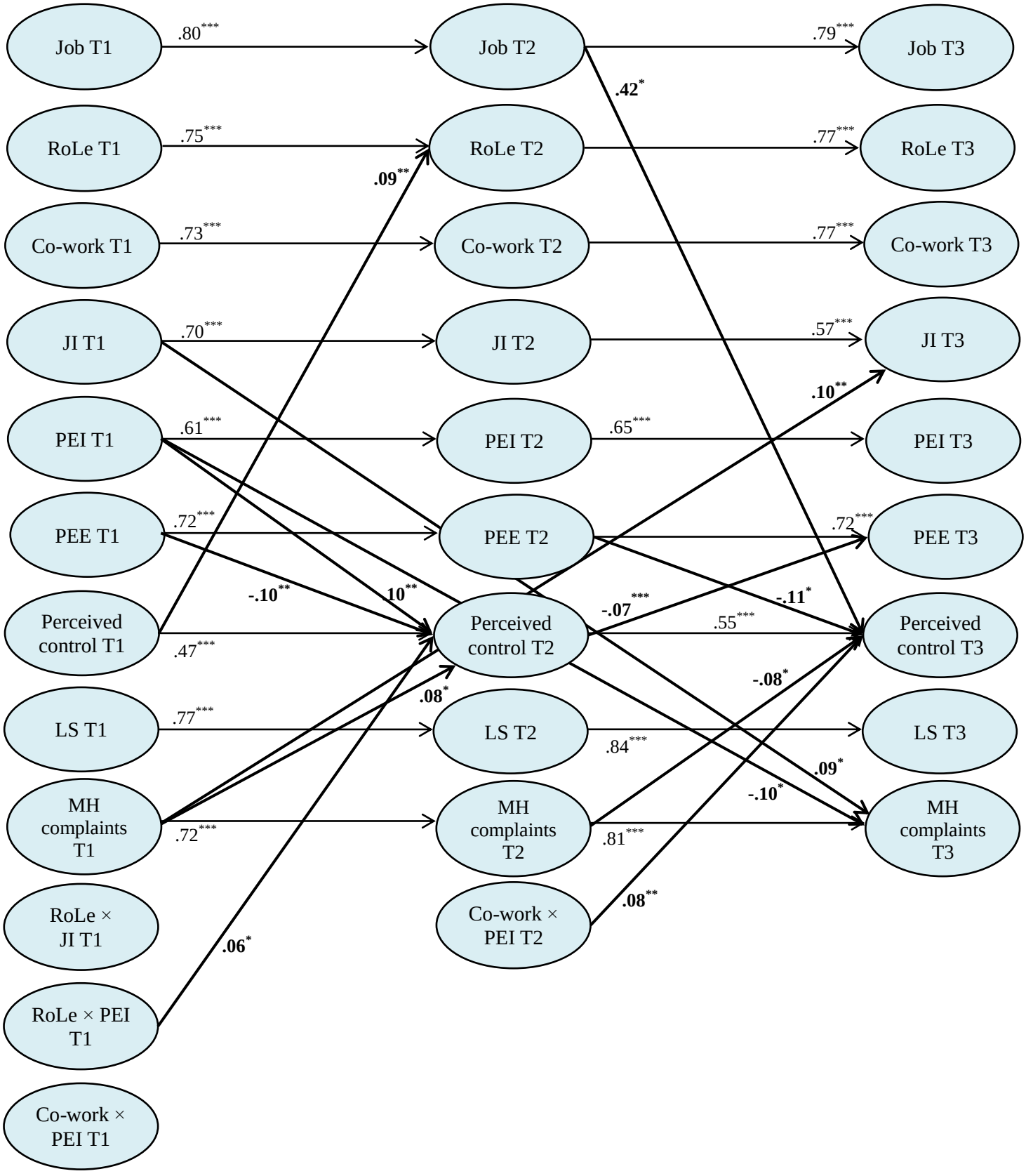

Figure 10. Structural model containing autoregressive and statistically significant cross-lagged effects corresponding to test of longitudinal mediated moderation

Notes. Control variables, covariances between exogenous variables and between disturbances of endogenous variables are omitted due to the figure clarity. Job = Job challenge; RoLe = Role harmony and leader support; Co-work = Co-worker cooperation; JI = Job insecurity; PEI = Perceived internal employability; PEE = Perceived external employability, LS = life satisfaction; MH complaints = mental health complaints. $^{*}p < .05$; $^{**}p < .01$; $^{***}p < .001$.

Regarding control variables, older employees ($\gamma = .07$, $p < .05$) and employees who changed a job within their organization after the first measurement occasion perceived a higher level of job challenge at T2 ($\gamma = .08$, $p < .05$). Men perceived a higher level of role harmony and leader support at T3 ($\gamma = -.10$, $p < .01$). Additionally, employees with a permanent contract and employees with a managerial position perceived higher levels of role harmony and leader support at T3 as compared to employees with temporary contracts ($\gamma = -.05$, $p < .05$) and no managerial position ($\gamma = .06$, $p < .05$). Men ($\gamma = .08$, $p < .001$) and employees who reported an intra-organizational job change after the first measurement occasion perceived a higher level of co-worker cooperation at T2 ($\gamma = .06$, $p < .01$). With regards to job insecurity, women and older employees perceived a higher probability of a potential job loss, both at T2 ($\gamma_{gender} = -.07$, $p < .01$; $\gamma_{age} = .09$, $p < .05$) and T3 ($\gamma_{gender} = -.11$, $p < .05$; $\gamma_{age} = .16$, $p < .05$). In addition, employees who changed jobs within their organization after the first measurement occasion reported a lower level of job insecurity ($\gamma = -.04$, $p < .05$) and a higher level of perceived internal employability at T2 ($\gamma = .07$, $p < .01$). Furthermore, employees who changed co-workers after the second measurement occasion reported a lower level of perceived internal employability at T3 ($\gamma = -.07$, $p < .05$). Regarding perceived external employability, older employees perceived lower chances of a new job at the external labor market both at T2 ($\gamma = -.12$, $p < .001$) and T3 ($\gamma = -.10$, $p < .01$). Additionally, men reported higher levels of perceived external employability at T3 ($\gamma = .08$, $p < .05$). Employees who changed co-workers after the second measurement occasion reported a lower level of perceived control at T3 ($\gamma = -.05$, $p < .05$). Employees with doctoral or equivalent diploma had higher life satisfaction at T2 as compared to both employees with bachelor's, master's or equivalent diploma ($\gamma = -.06$, $p < .05$) and employees who completed upper secondary or pre-university education ($\gamma = -.08$, $p < .05$). Additionally, employees with a managerial position had higher life satisfaction at T2 than employees without managerial position ($\gamma = .06$, $p < .01$). Employees who reported a change of co-workers had a higher life satisfaction both at T2 ($\gamma = .07$, $p < .05$) and T3 ($\gamma = .05$, $p < .001$). Additionally, intra-organizational job change positively predicted life satisfaction at T3 ($\gamma = .05$, $p < .001$). Finally, older employees reported less mental health complaints at T3 ($\gamma = -.10$, $p < .001$).

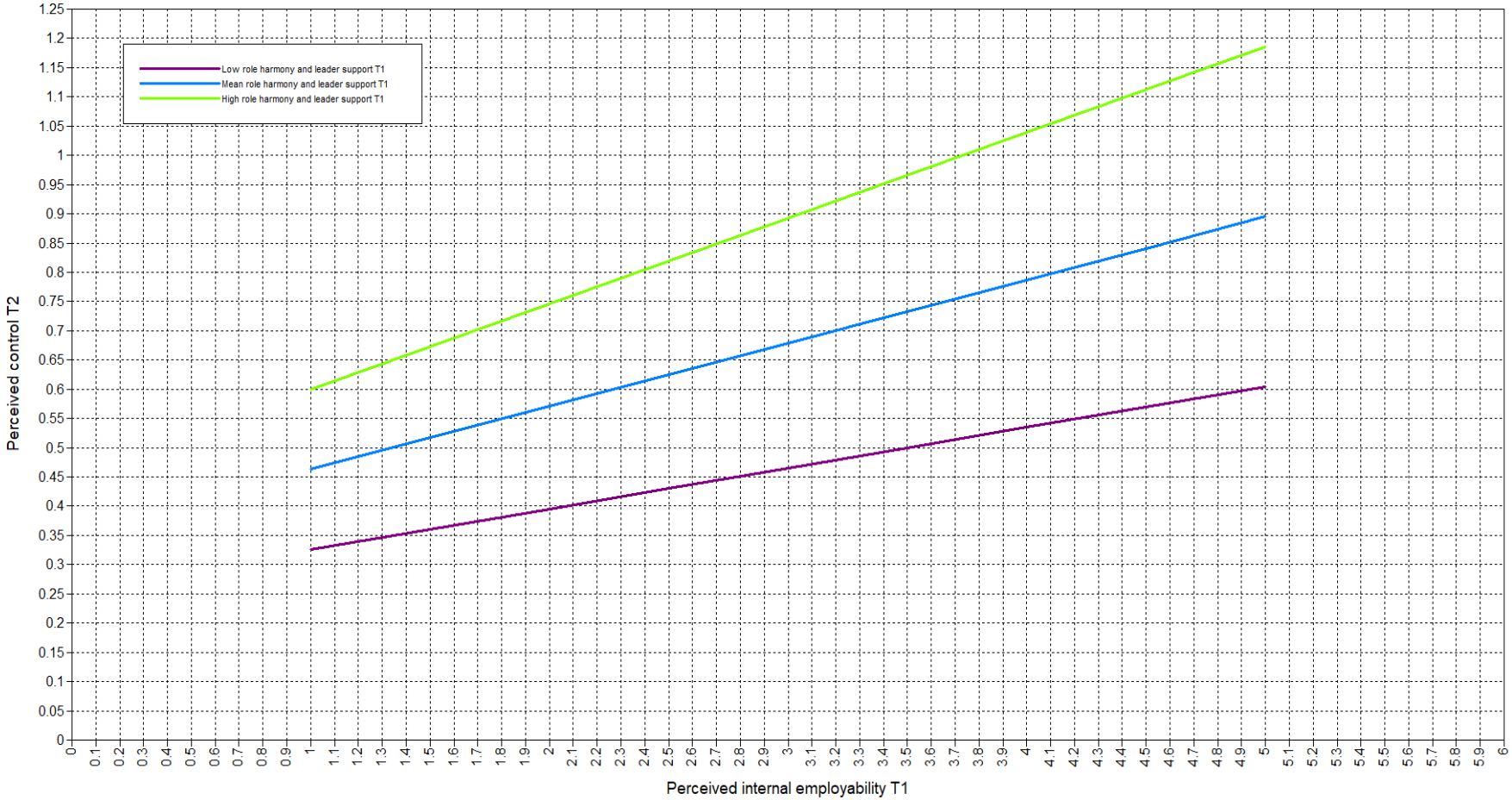

Figure 11. The moderating effect of role harmony and leader support (T1) on the cross-lagged effect from perceived internal employability (T1) to perceived control (T2) (result of a simultaneous test of interaction effects)

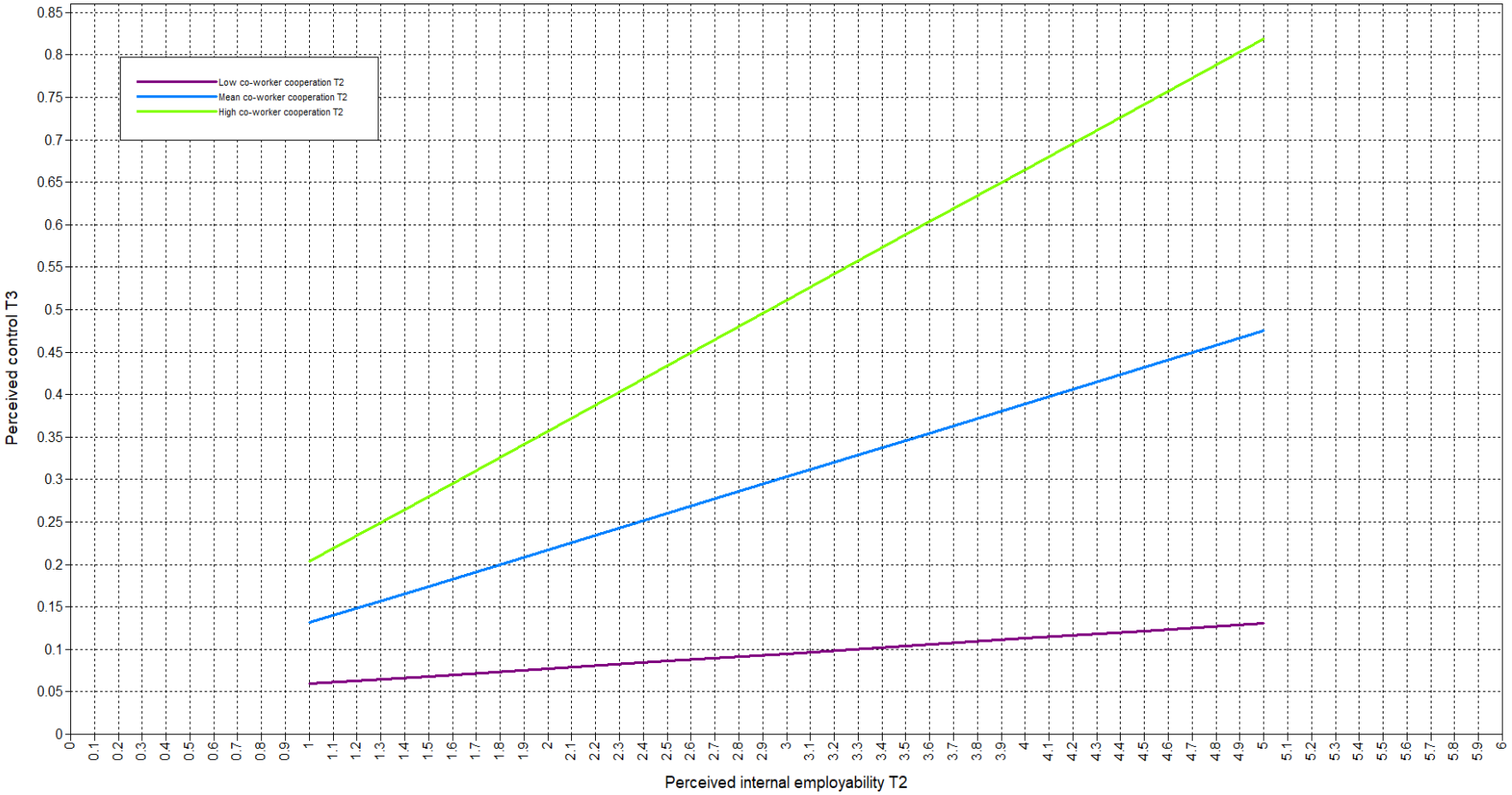

Figure 12. The moderating effect of co-worker cooperation (T2) on the cross-lagged effect from perceived internal employability (T2) to perceived control (T3) (result of a simultaneous test of interaction effects)

DISCUSSION

The present PhD placed the focus on job insecurity and perceived employability, two constructs that have been framed as central determinants of employee's well-being in the context of the contemporary labor markets (Fugate *et al*., 2004; Sverke *et al*., 2002). Despite the well-established importance of both constructs – not only for individual employees, but also for entire organizations (Cheng & Chan, 2008; Van der Heijde, & Van der Heijden, 2006) – disproportionately less is known about how we can nurture them to good effect. In response, the overall aim of this PhD was to advance the knowledge about work environmental antecedents and moderators in the job insecurity and perceived employability literature. In pursuing this aim, four more specific research objectives were addressed by conducting a 3-wave cross-lagged panel study. The first and second objective referred to examining the relative direct impacts of a comprehensive set of work environmental variables on job insecurity and perceived internal/external employability, respectively, accounting for the explaining mechanism of these effects. The third and fourth objective were to examine the relative moderating impacts of the comprehensive set of work environmental variables on the effects from job insecurity and perceived internal/external employability to employees' well-being, accounting for the explaining mechanism of these effects. In order to encompass a comprehensive set of work environmental variables that have most direct ties with employees' everyday work experience, we employed a model of psychological climate (PC) developed by James and colleagues (James *et al.*, 2008; James & James, 1989; Jones & James, 1979). This model conceptualizes work environment perceptions along four dimensions – job challenge, role harmony, leader support and coworker cooperation. Furthermore, occupational self-efficacy represented the hypothesized mechanism underlying the direct effects of PC dimensions, whereas we hypothesized that perceived control mediates the moderating effects of PC dimensions.

In the following paragraphs, we first discuss the main findings of this PhD and their theoretical implications with respect to each research objective. Then, we elaborate the methodological considerations and avenues for future studies. Finally, we suggest several practical implications.

The overview of the research findings

Objective 1: PC dimensions as antecedents of job insecurity and the mediating role of occupational self-efficacy

By addressing the first research objective, we examined whether the PC dimensions may reduce the subjective experience of job insecurity across a 1-year time lag. In particular, based on the theoretical assumptions of the COR theory (Hobfoll *et al.*, 2018) and SCT (Bandura, 1989), we hypothesized and tested the idea that each PC dimension may be conducive for the development of occupational self-efficacy which, in turn, leads to a decrease in job insecurity perceptions. We also hypothesized partial mediation as COR theory hints at the plausibility of additional mechanisms that might explain the beneficial effects of PC dimensions.

The effects from PC dimensions to occupational self-efficacy

Departing from the first set of hypotheses (H_{1a} – H_{1d}), the results of this PhD did not support the assumption that PC dimensions enhance employees' occupational self-efficacy. Our predictions were based on the COR theory, which guided us to frame PC dimensions as work environmental resources that enable employees to more easily develop personal resources in terms of efficacy beliefs (Hobfoll *et al.*, 2018). Complementing COR theory, SCT enabled us to more precisely delineate the hypothesized effect from each PC dimension to occupational self-efficacy along three sources of efficacy beliefs (enactive mastery experiences, vicarious experience and verbal persuasion; Bandura, 1997). In particular, we reasoned that each of the four PC dimensions has the potential to facilitate performance successes signaling employees that they are capable of mastering diverse job-related demands and challenges. Supportive leaders and cooperative co-workers were additionally assumed to provide employees with positive vicarious experiences and verbal persuasion in their capabilities, both of which may serve as means of strengthening employees' efficacy beliefs (Bandura, 1997). In developing our hypotheses, we also accounted for the existing empirical data demonstrating that particular work environmental variables encompassed by the PC dimensions, have a longitudinal positive effect on employees' efficacy beliefs (cf. Llorens, Schaufeli, Bakker, & Salanova, 2007; Parker, 1998).

We see three main plausible explanations for the obtained non-significant effects from the PC dimensions to occupational self-efficacy. The first one relates to a ceiling effect. On average, the participants in our study indicated high levels of occupational self-efficacy (M_{T1} = 5.09; M_{T2} = 5.06; M_{T3} = 5.07; the highest theoretical score was 6). Accordingly, there was little room for positive change to occur (cf. Gist & Mitchell, 1992). The mean scores obtained

in our study were slightly higher than the means obtained in a study by Rigotti *et al*. (2008) (with the exception of the German sample who scored comparatively high). This might be due to the composition of our sample: all participants were white-collar workers who were mostly highly educated. Therefore, it would be interesting to test these effects among a more heterogeneous sample that also consists of low-skilled blue-collar workers who presumably have lower levels of occupational self-efficacy. The second plausible explanation refers to the time-lag used in our study: the 6-month time lag was potentially not long enough for the PC dimensions to affect employees' efficacy beliefs. This general assumption encompasses two more specific explanations. First one relates to the nature of occupational self-efficacy. With regard to the specificity level, this concept is situated between generalized self-efficacy (i.e., a trait-like conviction in one's abilities to meet demands in a broad array of domains) and task-specific self-efficacy (i.e., the confidence in one's abilities to successfully execute a particular task, such as writing a research paper) (Schyns & von Collani, 2002). As such, it should be less stable and more malleable than generalized self-efficacy and more resistant to change than task specific self-efficacy. However, the results of our study demonstrated a relatively high rank-order stability in the level of this construct (autoregressive coefficients equaled .75 and .71) indicating its greater resemblance with generalized trait-like self-efficacy (Schreurs *et al.*, 2010). From the statistical point of view, control of the baseline level in the outcome that is relatively stable, such as ours, partials out a substantial amount of variance (i.e., across-time stability), leaving only a small portion of variance (i.e., across-time change) that can be explained by the hypothesized antecedent. As a result, in cases where there is not much of the variance left to explain, antecedent variables often fail to exert a statistically significant effect on the outcome variable (cf. Taris & Kompier, 2006). Therefore, we speculate that longer time lags might be needed to demonstrate and explain change in occupational self-efficacy that is contingent on one's resources in the work environment. A related methodological explanation refers to the composition of our sample regarding age and organizational tenure. Bandura (1997) argued that self-efficacy is more easily influenced when a person does not yet have much experience with particular tasks. The participants in this study were on average 38 years old and worked around 7 years in their current organization. Accordingly, we assume that they have already acquired a substantial amount of work-related experience, either on their current or in previous job(s). The implications is that they might have already built a robust sense of their capabilities of how well they can perform in a job that is resistant to change within 6 months. In contrast, the hypothesized effects of the work environmental variables tested within this time frame might have been more easily observable among employees who have just entered the labor market (i.e., finished their education). Finally, a

third plausible explanation refers to the established reinforcing efficacy of mastery experiences, vicarious experiences and verbal persuasion. In particular, whereas challenging jobs, harmonious work roles, supportive leaders and cooperative co-workers might have facilitated the attainment of these experiences, their integration into employees' efficacy judgements might have been hampered by several contextual factors. This assumption departs from SCT, which states that the cognitive appraisal of efficacy information (whether conveyed enactively, vicariously or persuasively) determines its strengthening potential, rather than the information *per se*. Furthermore, this cognitive appraisal is influenced by multitude personal, social and situational factors (Bandura, 1997). Accordingly, we suggest that plausible situational factors (e.g., non-adequate performance evaluation system), which were not accounted for in this study, might have diminished the reinforcing potential of positive information about employees' occupational self-efficacy. To illustrate, challenging assignments might have facilitated the attainment of performance successes. However, these successes were potentially not properly recognized and rewarded by the organization resulting with unaffected efficacy beliefs.

Although our findings failed to provide support for the hypothesized causality from the PC dimensions to occupational self-efficacy, we did found some evidence for the reversed: a higher level of occupational self-efficacy related to an increase in job challenge after a 6-month period. Even though reversed causation was not the focus of this study due to its less direct practical utility, we did account for its theoretical plausibility with regard to some effects (see p. 53). As such, we suggested that employees' efficacy beliefs may not only be shaped by the experience in a particular work environment, but might also affect how one perceives/affects the work environment. This notion coincides with James and Sells (1981) who argued that the PC perceptions are a function of P × S interaction. It is also consistent with the existing empirical studies (cf. Llorens *et al.*, 2007). Furthermore, the positive cross-lagged effect from occupational self-efficacy to job challenge can be understood along insights from both COR theory and SCT. First, consistent with Hobfoll *et al.*'s (2018) predictions, this finding indicates that employees with higher beliefs in their job-related abilities might more easily gain the opportunities to autonomously conduct assignments that are challenging, non-monotonous and important. Second, SCT offers more specific explanations why this might be so. For example, employees with higher (occupational) self-efficacy tend to set higher goals for themselves as they appraise demanding tasks "as challenges to be mastered rather than as threats to be avoided" (Bandura, 1994, p.71). Furthermore, they invest more effort in accomplishing those goals and persevere in the face of obstacles, setbacks and failures (Bandura, 2009). Finally, they experience less anxiety arousal

that might impede their decision to take on a challenging tasks. Therefore, we might argue that employees with higher beliefs in their job-related abilities (i) choose assignments that are more challenging and require more responsibilities, (ii) exert superior performance and are therefore chosen to perform such tasks. In all, this finding, along with the non-significant effect from job challenge to occupational self-efficacy, demonstrates that employees who are already better equipped with personal resources will more easily extend this advantage even further by attaining more resources from their environments (also known as the Matthew principle: "to those that hath shall be given"; McCracken & Winterton, 2006). However, we believe that this conclusion must be accompanied with some caution. First, the positive effect from occupational self-efficacy to job challenge was not stable across time (i.e., it was significant from T1 to T2, but not from T2 to T3). Second, we only found evidence for one PC dimension. While perhaps logical to expect that being confident in one's abilities to master various job-related challenges most closely relates to the nature of one's job assignments, we believe that it would be reasonable to expect that higher occupational self-efficacy may also exert a beneficial influence with regard to harmonious work roles, supportive leaders and cooperative co-workers.

The effect from occupational self-efficacy to job insecurity

Furthermore, our results did not support the hypothesized negative cross-lagged effect from occupational self-efficacy to job insecurity (H_{2a}). This assumption was derived from COR theory and SCT, which inspired us to argue that employees who believe that they are capable of successfully performing a wide range of assignments will subsequently perceive lower chance of losing their current job. In particular, COR theory guided us to assume that employees who are better equipped with personal resources (i.e., occupational self-efficacy) will feel more able to protect themselves against a resource loss (i.e., loss of employment) (Hobfoll, 2001). Consistent with this assumption, SCT posits that employees who judge themselves highly efficacious generally expect favorable outcomes for themselves (cf. Bandura, 1997). Accordingly, we assumed that those employees will be inclined to believe that their jobs are safe.

However, our results did not support these assumptions. The reason for the obtained non-significant cross-lagged effect from occupational self-efficacy to job insecurity might be derived from the SCT. In particular, Bandura (1997) argued that, under particular conditions, expected outcomes might be independent of efficacy beliefs. Generally, this scenario is plausible when people believe that these outcomes do not depend on their competencies and quality of their performance. Accordingly, one might expect that (s)he is capable of producing

a certain behavior (i.e., efficacy belief) and at the same time, believe that this behavior will not lead to a certain outcome (i.e., outcome expectancy). These theoretical assumptions hint at the possibility that participants in our study, despite being highly confident in their abilities to successfully perform their job, were not convinced that superior job performance might enable them to get a more secure job position. We see three plausible contextual factors that might have contributed to this pattern of efficacy beliefs and outcome expectancies. The first relates to the potential lack of an adequately developed employee performance evaluation system within the organizations in our study: if employees' did not perceive that their superiors keep track of their performance, there was no reason for them to believe that this performance might secure their position. Second, employees might have perceived that the relevant information about the future of their company and their job position are not being transparently communicated by their management. Lack of adequate perceived organizational communication might have instilled uncertainty about the criteria relevant for securing one's job position, hampering the link between efficacy beliefs and job insecurity. And third, employees in our study might have had a clear idea about which factors contribute to their job security (e.g., in case of lay-offs). However, these factors might have been completely unrelated to their capabilities and performance. As an example, Jacobson and Hartley (1991) make a distinction between a threat to one's job that is person independent (i.e., job is at the risk regardless of the holder, e.g., in times of financial crisis certain job positions are evaluated as non-essential and too costly for the organization) and a threat to one's job that is person dependent (i.e., the person itself is threatened, whereas the job position may continue) (see also Shoss, 2017). Finally, the non-significant cross-lagged effect from occupational self-efficacy to job insecurity might be explained in line with the restriction of range in both predictor and outcome variable. As already noted, the mean levels in occupational self-efficacy obtained among our participants were high meaning that this variable had reduced variance (i.e., restricted range). In addition, the mean scores obtained in the job insecurity scale were low, a finding that is usually obtained among white-collar employees. To illustrate, the mean scores obtained in this study were M_{T1} = 2.38 (SD = 0.89); M_{T2} = 2.30 (SD = 0.86); M_{T3} = 2.29 (SD = 0.89), whereas the mean score obtained in a study by Tomas and Maslić Seršić (2015) who used the identical scale, but examined job insecurity among Croatian blue-collar shift workers was M_{T1} = 3.36 (SD = 0.96). Therefore, the restricted range in both occupational self-efficacy and job insecurity might have resulted with the underestimated cross-lagged correlation between these two variables (cf. Salkind, 2010).

The indirect effects from the PC dimensions to job insecurity via occupational self-efficacy

Consistent with the non-significant cross-lagged effects discussed in the paragraphs above, the results of this PhD did not support the hypothesized indirect effects from the PC dimensions to job insecurity via occupational self-efficacy, thus refuting H_{3a}, H_{5a}, H_{7a} and H_{9a}. In addition, we did not find support for the hypothesized direct negative cross-lagged effects from job challenge, and role harmony and leader support to job insecurity, leading us to reject H_{4a}, H_{6a}, and H_{8a}. However, in line with H_{10a}, we found that co-worker cooperation had a negative cross-lagged effect on job insecurity.

Accordingly, among the comprehensive set of work environmental variables examined in this PhD, only the cooperative relationships among co-workers reduced job insecurity perceptions across a 1-year time lag. Moreover, this effect was not explained by occupational self-efficacy. The question is then, why is this work environmental variable important for job insecurity and what makes it more important in comparison to job challenge, role harmony and leader support? The plausible answer is that job insecurity perceptions inevitably arise in a social context (Låstad, Berntson, Näswall, Lindfors, & Sverke, 2015) and the features of this social context are influential in shaping how one feels, thinks and behaves in his/her job. As such, employees who mutually assist each other and care for each other's well-being are generally not inclined to perceive each other as competitors who endanger their jobs. In this vein, competitive organizational cultures have been recognized as potentially impactful, yet underexplored, antecedent of job insecurity (Shoss, 2017). Furthermore, co-worker cooperation may reduce gossiping and workplace bullying, both of which have the potential to nurture job insecurity perceptions (Glambek *et al*., 2014; Glambek *et al*., 2018; Smet *et al.*, 2016). In addition to these mechanisms that were not encompassed by the present PhD, we suggest that co-worker cooperation may exert its direct effect on job insecurity by inducing a perceptual bias. More specifically, friendly and cooperative relationships in one's work environment may predispose employees to perceive less threat in their environment by stimulating lower baseline perceptions of threat (cf. Shoss, 2017). In contrast to co-worker cooperation, the remaining PC dimensions might be perceptually less pronounced and "psychologically present" in the employees' work environment to create such perceptual bias. In addition, with the exception of leader support, the remaining PC dimensions do not constitute one's social context and therefore, do not have to potential to induce detrimental mechanisms, such as competition and bullying. Rather, their influence might be more plausible via the enhancement of employees' personal resources, a mechanisms that was, for the reasons stated above, not substantiated by our results. Finally, the correlations among the

PC dimensions indicate that co-worker cooperation has the least conceptual overlap with the remaining PC dimensions. In contrast, the correlations between job challenge and, role harmony and leader support were relatively large (see Table 2), which increased their collinearity and potentially contributed to non-significant independent effects of these two PC dimensions.

In all, the results of this PhD demonstrate limited utility of work environmental variables in reducing job insecurity perceptions. However, they do reveal one new job insecurity antecedent that, to the best of our knowledge, has not been investigated until now. As such, investment in cooperative relationships represents a potentially valuable strategy to reduce job insecurity in the long run that might be easily implemented by various HR strategies (as will be discussed in the *Practical implications* section).

Objective 2: PC dimensions as antecedents of perceived internal/external employability and the mediating role of occupational self-efficacy

The hypotheses developed under the second research objective specified the PC dimensions as antecedents of perceived internal and perceived external employability. Departing from the insights of COR theory and SCT, we hypothesized that the PC dimensions increase the perception of individuals' employability within the internal and external labor market by enhancing their occupational self-efficacy (Bandura, 1997; Hobfoll, 2001). As with job insecurity, we hypothesized partial mediation accounting for the plausibility of additional mechanisms that might explain beneficial effects of a resourceful work environment. The first set of hypotheses and corresponding non-significant cross-lagged effects from the PC dimensions to occupational self-efficacy have already been discussed in relation to job insecurity as an outcome (pp. 112-5). Therefore, in the paragraphs that follow, we first discuss the results addressing the hypothesized effects from occupational self-efficacy to perceived internal and perceived external employability, and then conclude with the results that refer to the hypothesized indirect and direct effects from the PC dimensions to perceived internal/external employability.

The effect from occupational self-efficacy to perceived internal/external employability

The assumption that employees who are convinced of their capabilities to successfully perform their job will perceive a higher chance of finding a new one, either within the current organization (H_{2b}), or at the external labor market (H_{2c}), was not substantiated by the results of this PhD. As in the case of job insecurity, these hypotheses were grounded on the premises of COR theory and SCT. To reiterate, we suggested that employees with a higher level of

occupational self-efficacy are more capable of gaining a new resource, i.e., the conviction that they can, if they want to, find a new job within the current or another organization (Hobfoll *et al*., 2018). Complementing this COR assumption, SCT posits that people with higher self-efficacy conjure up more favorable outcomes, which in this case concerns many opportunities of a new job (at the internal and external labor market).

In line with the non-significant cross-lagged effects from occupational self-efficacy to perceived internal/external employability, the results of our study demonstrate that employees do not perceive a link between their job-related capabilities and their chances of a new employment. The general explanation for this somewhat surprising finding might be derived from SCT. As described in relation to job insecurity, efficacy beliefs do not predict expected outcomes in situations when people do not believe that their behavior is considered relevant enough for these outcomes (Bandura, 1997). As such, our results coincide with Philippaers (2017) who did not find support for the positive effect from employees' self-reported performance to perceived employability. The author interpreted the non-significant effect in light of the Signalling theory (Spence, 1974), suggesting that performance in itself might not be visible enough to prospective employers, in comparison to more observable signals such as superior reference letters and their CV. We believe that our results coincide with this reasoning: belief in one's capabilities to perform well might not enhance one's impression that (s)he could easily find a new job if these capabilities and superior performance are not recorded as more observable signals. While this explanation more closely relates to perceived external employability, it might also relate to perceived internal employability if organizations do not keep track of employees' performance successes. Additional explanation, compatible with SCT, might be derived from the employability process model which recognizes that certain structural factors (i.e., structure risks and opportunities) might moderate the effects from movement capital to perceived employability (cf. Forrier *et al*., 2009). These factors stem from social systems and have the potential to shape employment and career opportunities (Forrier *et al*., 2009). One such structural factor that might have attenuated the expected positive effect from occupational self-efficacy to perceived internal employability concerns participants' organizational contexts. As already noted in relation to job insecurity, the criteria about what constitutes one's chances to find a new job within one's current organization has potentially not been transparently communicated to employees. Alternatively, these criteria might have been clear, but they encompassed factors unrelated to one's abilities (e.g., seniority and organizational tenure). In all, we suggest that employees' positive evaluations of their job-related abilities might predict perceived chances of a new job (on the internal and external labor markets) only if these abilities are sufficiently (i) visible

and/or (ii) important to prospective employers, which was potentially not the case in the present study. Finally, we note that the restricted range in occupational self-efficacy scores might resulted with underestimated effect of this variable on perceived internal/external employability.

The indirect effects from the PC dimensions to perceived internal/external employability via occupational self-efficacy

In line with the non-significant cross-lagged effects from the PC dimensions to occupational self-efficacy and from occupational self-efficacy to perceived internal/external employability, we did not find support for the hypothesized indirect effects proposed by $H_{3b,c}$, $H_{5b,c}$, $H_{7b,c}$ and $H_{9b,c}$. Additionally, none of the PC dimensions had a significant direct effect, neither on perceived internal employability (refuting H_{4b}, H_{6b}, H_{8b} and H_{10b}), nor on perceived external employability (refuting H_{4c}, H_{6c}, H_{8c} and H_{10c}).

In all, these results demonstrate that the comprehensive set of work environmental variables utilized in the present PhD does not have a significant role in enhancing employees' employability perceptions. However, concluding that work environmental variables should be completely abandoned in future studies as antecedents of perceived employability is, in our opinion, premature for three reasons. First, perceived employability has been shown to be a rather stable, trait-like construct that might take more time than one year to be shaped by the resources in one's work environment (cf. Kirves *et al.*, 2014b and Figures 4 and 10 that presents relatively high rank-order stability coefficients obtained in the present PhD). Second, the restriction in score range observed in occupational self-efficacy might have underestimated the hypothesized indirect link that would plausibly be more easily observable in more heterogeneous samples (e.g., including blue-collar employees as well). And third, the PC variables utilized in the present PhD are potentially not specific enough to produce a change in perceived internal and external employability. As such, work environmental variables that more specifically match these two outcomes, such as variables with a more direct impact on the accumulation of employees' human capital (e.g., leader support for career and skill development, cf. Wittekind *et al.*, 2010) might more closely relate to changes in perceived internal/external employability.

Objective 3: PC dimensions as moderators of the effects from job insecurity to employees' well-being and the mediating role of perceived control

The third research objective encompassed the idea of mediated moderation: we hypothesized that the moderating effects of PC dimensions on the effects from job insecurity to employees' well-being are mediated by perceived control. Departing from COR theory, we assumed that each PC dimensions, as a resource that is immediately available to employees in their work environments, has the potential to buffer the negative effects of job insecurity on employees' general well-being (i.e., life satisfaction and mental health). In addition, we assumed that the moderating effects of PC dimensions can, at least in part, be explained by perceived control. To address the assumption that perceived control represents the mechanism that is (partially) responsible for the beneficial moderating effects of PC dimensions we tested whether (i) PC dimensions moderate the negative effects from job insecurity to perceived control and whether (ii) perceived control has a positive cross-lagged effect on life satisfaction and a negative cross-lagged effect on mental health complaints. Summarized, these two sets of hypotheses delineate the mediated moderation effects where the interaction effects predict a mediator which, in turn, predicts the outcomes (Fairchild & MacKinnon, 2009). Based on the premises of COR theory and the existing empirical findings, we additionally hypothesized partial mediation from each PC dimension and job insecurity to life satisfaction and mental health complaints via perceived control. Therefore, in the paragraphs that follow, we discuss the results in the order that accounts for: (i) the effects from antecedents to a mediator variable (i.e., PC dimensions → perceived control; job insecurity → perceived control; PC dimensions × job insecurity → perceived control); (ii) the effects from a mediator to outcome variables (i.e., perceived control → life satisfaction/mental health complaints); (iii) the partial mediation effects of main (e.g., job insecurity → perceived control → life satisfaction) and moderating effects (e.g., job challenge × job insecurity → perceived control → life satisfaction).

The effects from PC dimensions to perceived control

The hypotheses positioning PC dimensions as predictors of perceived control received limited empirical support in this PhD. In particular, our results showed that job challenge has a positive cross-lagged effect on perceived control, supporting H_{11a}. In contrast, the cross-lagged effects from the remaining PC dimensions to perceived control were non-significant (refuting $H_{11b,c,d}$). Each hypothesis was delineated from the idea that employees who have greater access to the resources in their work environment may more easily gain a sense of control over their current work situation (cf. Corollary 1 of COR theory, Hobfoll *et al*., 2018).

Our results demonstrated that employees who perceived many opportunities to autonomously perform challenging and important assignments felt more in control over their work situation after a 6-month time period (the caution is warranted, though, as this effect was not stable across time). This result, along with the non-significant effects of the two remaining PC dimensions, hints at the superior importance of the characteristics of the assignments one performs in contrast to the characteristics of work role, leader and co-workers. However, we no longer feel confident to interpret this result in line with the theoretical potential of this PC dimension to foster employees' knowledge and skillfulness, nor with the assumption that job challenge signals employees that they are valuable to their organization (as suggested in the introductory part on p. 39). The reason is that our results generally did not support the assumption that job challenge enhances one's belief in his/her job-related abilities after a 6-month time lag, nor did we found that job challenge decreased perceptions of job insecurity after a 1-year time lag. Therefore, we suggest an alternative explanation that is specific only for job challenge, i.e., does not characterize two remaining PC dimensions. In particular, we believe that the spillover of control perceptions, namely from control one has over the scheduling, methods and content of assignments to a more general feeling of control over one's work situation, may serve as a more plausible explanation for the obtained pattern of results. This suggestion coincides with the literature that recognizes that organizations have the power to enhance employees' perceptions of control by enabling them the autonomy and discretion in how and when the job gets done (cf. Greenberger & Strasser, 1986; Thompson & Prottas, 2005).

In addition to the positive cross-lagged effect from job challenge to perceived control, we found the positive, although non-stable, cross-lagged effect from perceived control to role harmony and leader support. This reversed causation effect is somewhat surprising as, to the best of our knowledge, the existing (although, mainly cross-sectional) literature advocates the direction proposed by our hypotheses (i.e., that role harmony and leader support affect one's perception of control over current work situation, not the other way around; cf. Ashford *et al*., 1989). Therefore, we believe that the explanation we propose here is fairly tentative and opened for further examination. Namely, we suggest that employees who feel more in control over their current work situation may indeed have more power to influence their leader (Anderson & Brion, 2014). As a result, their leader may be more prone to include them in job-related decisions, and provide them clear guidance and support.

The effect from job insecurity to perceived control

In contrast to H_{12a}, our results did not support an assumption stating that job insecurity has a negative cross-lagged effect on perceived control. This hypothesis was grounded on the premise of COR theory according to which a lost perception of job security triggers future loss of perceived control (Hobfoll, 2001). In line with this assumption, we argued that job insecure employees eventually develop an impression of a limited scope of control over their work situation. After all, one of the most prominent features of job insecurity concerns high levels of uncertainty about what will happen with one's job, which obstructs employees' attempts to take concrete actions and cope with this work stressor (Smet *et al.*, 2016). The negative association between job insecurity and perceived control has been empirically supported in cross-sectional (Vander Elst *et al.*, 2011) and more importantly, longitudinal studies that (as our study) employed a cross-lagged panel design with a 6-month time lag (Vander Elst *et al.*, 2014b).

Therefore, non-significant effects obtained in our study are somewhat surprising. However, we see two plausible explanations. First one, more general, refers to the observed low levels of job insecurity that, as already noted, are common in samples of white-collar employees and have reduced effects on the outcomes of interest (due to the restriction of range in the predictor variable; cf. Salkind, 2010). Accordingly, it would be interesting to examine whether job insecurity deteriorates perceived control among a more heterogeneous sample, composed of white- and blue-collar employees. However, we should also note that the mean score obtained in our study coincides with the mean score obtained in study that did demonstrate the negative cross-lagged effect from job insecurity to perceived control across a 6-month time lag (cf. Vander Elst *et al.*, 2014b). Therefore, the second plausible explanation derives from one notable difference between our study and study by Vander Elst *et al.* (2014b). In particular, whereas these authors examined solely the effect from job insecurity to perceived control, the reported non-significant effects of job insecurity in this study are controlled for the effects of the remaining antecedent variables included in our research model (i.e., perceived internal/external employability, PC dimensions and latent interaction variables representing hypothesized buffering and amplifying effects).[11]

[11] In line with this suggestion, we conducted a subsequent analysis testing solely the (normal and reversed) cross-lagged effects between job insecurity and perceived control. Indeed, the results of this analysis did reveal a negative cross-lagged effect from T1 job insecurity to T2 perceived control ($\beta = -0.09$), whereas the reversed effects from perceived control to job insecurity were not significant.

The moderating effects of PC dimensions on the effect from job insecurity to perceived control

Furthermore, our results failed to support the hypothesized buffering effects of PC dimensions on the negative effect from job insecurity to perceived control (i.e., $H_{13a,b,c,d}$). This set of hypotheses was derived from COR theory which posits that people with more resources are less vulnerable to resources loss (Hobfoll *et al.*, 2018). As such, the initial resource loss will less likely trigger future resource loss if a person has the access to abundant resources in his/her environment (cf. Holmgreen *et al.*, 2017). Building on these assumptions, we hypothesized that job insecure employees will less likely develop a feeling of powerlessness (i.e. lack of perceived control) if they have a greater pool of available resources in their immediate work environment (i.e. job challenge, role harmony, leader support and co-worker cooperation), they can use to cope with this work stressor. In this vein, we suggested that PC dimensions may facilitate either more direct forms of coping (by, for example, enabling one the access to relevant information), and/or be used to indirectly cope with job insecurity (by, for example, enabling one to preserve energy). The described buffering potential of work environmental variables in relation to perceived control has already been alluded to in job insecurity literature (e.g., Vander Elst *et al.*, 2010). However, to the best of our knowledge, this PhD represents the first attempt of its empirical verification.

The absence of significant cross-lagged moderation effects may be explained in line with the following two explanations. First, we suggest that the time-lag used to demonstrate the longitudinal moderation may have been inadequate, i.e., we advocate that it was potentially too long. In particular, our results demonstrated a relatively low rank-order stability of perceived control (autoregressive .47 and .55), a finding that coincides with its conceptualization as a situational appraisal of one's *current* work situation. Although lower level of a construct stability increase the chance that one will demonstrate a significant cross-lagged effect (as there is more variance left unexplained in the outcome) (Taris & Kompier, 2006), we suggest that, in this particular case, PC dimensions might have had a more immediate, short-term buffering effect on employee's loss of control. As such, all the suggested reasons for why each particular PC dimension may have a beneficial moderating effect in job insecure situation, may be relevant in that particular moment or shortly after (e.g., within 1 month), yet lose its significance after half of a year. For example, role harmony may indeed facilitated employees' task accomplishments and leader support may enabled them access to relevant information. However, successful task performance and acquired information may had been of small and "expired" relevance for the change in perceived control 6 months after. Second plausible explanation we suggest concerns the potential

ineffectiveness of PC dimensions to produce buffering effects on employees' control perceptions in job insecure situation. As such, PC dimensions represent broad, second-order conceptualizations of work environmental variables (James & James, 1992). Despite the benefits of this higher-order conceptualizations (cf. Fugate & Kinicki, 2008), they were perhaps not specific enough to adequately address the uncertainty inherent to job insecure situations. In contrast, work environmental variables, such as transparent and timely organizational communication, that more specifically target this uncertainty, may be more efficient in attenuating the negative effects of job insecurity on perceived control.

The effects from perceived control to life satisfaction and mental health complaints

The further assumption that perceived control positively affects employees' general well-being was not supported by our results. More specifically, we found non-significant cross-lagged effects from perceived control to life satisfaction (refuting H_{16a}) and mental health complaints (refuting H_{16b}). In line with COR theory, perceived control has been framed as a valuable resource that enables employees to gain more resources in terms of higher life satisfaction and better mental health (Hobfoll *et al*., 2018). As such, we argued that feeling in control over one's current work situation is advantageous for employees as it promotes optimal functioning in their work surroundings, and as such, results in higher general well-being.

When interpreting the non-significant effect from perceived control to life satisfaction, we depart from the conceptual underpinnings of this criterion variable. In particular, Pavot and Diener (1993), whose scale (SWLS) we used for the purpose of this PhD, argued that life satisfaction represents a cognitive, conscious evaluation of one's life as a whole that is based on each respondent's unique set of criteria. Accordingly, when a person answers on five items that constitute SWLS, (s)he uses whatever standards (s)he finds most appropriate to judge how satisfied (s)he is with her life. For example, some respondents may assign greater weight to their private life (e.g., satisfaction with one's marriage and parental status), while for others, satisfaction with their career may outweigh the remaining life domains in the assessment of global life satisfaction. As the average age of participants in our sample was 38 years, we assume that their life satisfaction evaluations were less saturated with the evaluation of their work life, and more saturated with the evaluation of more private life domains, such as one's family life. We ground this assumption on developmental research which demonstrates that people in different age groups differ in life priorities. For example, Butković, Tomas, Španić, Vukasović Hlupić and Bratko (2017) found that satisfaction of need for relatedness predicted life satisfaction among middle-aged adults (age 31-40), but not

among emerging adults (age 18-25), whereas the opposite was found for the satisfaction of need for competence. Therefore, accounting for these theoretical and empirical arguments, we suggest that the evaluations of life satisfaction of the participants in this study were potentially more under influence of non-work-related factors that were not measured in our study. That is not to say that we assert that work life was not relevant for our participants. But, it might have been overweighed by other life domains resulting with a pattern of non-significant findings related to this outcome (a point that we will return to when discussing remaining effects on life satisfaction).

Furthermore, as previously stated, we found a non-significant cross-lagged effect from perceived control to mental health complaints. However, we did found the evidence for the reversed: mental health complaints had a significant cross-lagged effect on perceived control. This finding is somewhat surprising as it contradicts the existing empirical evidence on the longitudinal relationships between perceived control and mental health. More specifically, the only study which tested hypotheses comparable to ours using a cross-lagged panel design demonstrated that perceived control over one's current work situation had a negative cross-lagged effect on employee's depressive symptoms, whereas the effect from depressive symptoms to perceived control was non-significant (cf. Vander Elst *et al.,* 2014a). However, two studies differed in used time-lags: whereas the cross-lagged effect from perceived control to mental health in a study by Vander Elst *et al.* (2014a) was demonstrated with a time lag of 14 months, the effect from mental health to perceived control in our study was demonstrated with a time lag of 6 months. We believe this methodological difference is relevant as it coincides with the existing theoretical arguments used to explain the reversed effects from employee well-being to working conditions. In particular, researchers have argued that these reversed effects may be due to perceptual changes (e.g., a depressed worker perceives his/her environment more negatively), or real environmental changes (e.g., a depressed worker "drifts off" to worse environmental conditions) (cf. De Lange, Taris, Kompier, Houtman, & Bongers, 2004). Accordingly, we suggest that shorter time lags (e.g., 6 months) are potentially more appropriate to capture the effects from mental health to perceived control. In contrast, longer time lags (e.g., 14 months) might be more appropriate for the situational appraisal of control to consummate its impact on individual's mental health[12]. In line with these suggestions, note

[12] Note that consistent pattern of findings was demonstrated for the longitudinal relationship between job challenge and occupational self-efficacy: occupational-self efficacy had the significant cross-lagged effect on job challenge, whereas job challenge did not affect occupational self-efficacy. Summarized, our results suggest that perceptual or environmental changes might unwind in several months, whereas changes in individuals that are a result of environmental conditions might take longer time periods (e.g., more than 1 year).

that perceived control, as a situational appraisal, was less stable across time than mental health complaints (cf. Figure 10). The obtained reversed cross-lagged effects require one additional explanation. In particular, we found that mental health complaints at T1 had a positive cross-lagged effect on perceived control at T2, whereas the cross-lagged effect from mental health complaints at T2 on perceived control at T3 was negative, as expected. We believe that the counter-intuitive positive sign obtained between T1 and T2 variables is a result of statistical suppression. We ground this conclusion on the following pattern of correlations. First, bivariate correlation between mental health complaints at T1 and perceived control at T2 has a negative sign, as hypothesized. In addition, the correlation between mental health complaints and role harmony at T1 was relatively large (i.e., r = .45). Accordingly, the positive effect from mental health complaints at T1 to perceived control at T2 was potentially a results of a relatively high correlation between mental health complaints at T1 and role harmony at T1 (which were both included as predictors of perceived control at T2 in our research model) (cf. negative suppressor situation; Paulhus, Robins, Trzesniewski, & Tracy, 2004). Although plausible, we also believe that this explanation must be accompanied by caution as it is grounded on configuration of correlations between only three variables. As such, it might represent overly simplistic representation of the more complex interplay between a larger number of variables included in our research model (that are much harder to disentangle due to model complexity).

Mediation via perceived control accounting for the effects from PC dimensions, job insecurity and their interactions to employees' general well-being

Prior to discussing the results of the hypothesized mediated moderation effects, that were central to this PhD, we comment on the results of the hypothesized mediation of the main effects. Departing from PC dimensions, our results did not support the hypothesized mediation via perceived control proposed by $H_{17a,b,c,d}$ and $H_{19a,b,c,d}$. In addition, none of the PC dimensions had a significant direct effect, neither on life satisfaction (refuting $H_{18a,b,c,d}$), nor on mental health complaints (refuting $H_{20a,b,c,d}$). The plausible explanation of the non-significant indirect and direct cross-lagged effects from PC dimensions to life satisfaction has already been elaborated when discussing the effects from perceived control to this outcome variable. As such, we suggest that life satisfaction assessments in our study were robust to any antecedent specific to work domain, including PC dimensions. The non-significant indirect and direct cross-lagged effects from PC dimensions to mental health complaints are somewhat more surprising as the abundance of existing research demonstrates that work environmental resources (e.g., job control and social support from supervisors) do effect employees' mental

health (cf. De Lange, 2005). Moreover, the strongest effects between these variables are usually demonstrated with a time lag of 1 year, such as the one used in our study (De Lange *et al*., 2004). Therefore, be it tentative, we suggest that the results obtained in this PhD may be explained in line with the following. On one hand, the results of the cross-lagged panel analysis demonstrated relatively high rank-order stability in the level of mental health complaints (autoregressive coefficients equaled .72 and .81). Therefore, the amount of variance that was left to be explained was relatively low. On the other hand, mental health complaints at T3 were regressed on 11 antecedent variables. Not only does this number of variables exceed the average number of antecedents included in studies that did demonstrate significant cross-lagged effects on mental health (for a useful review, see De Lange, 2005), but also the cross-lagged effects of some of those antecedents were significant, thereby accounting for most of shared variance (as will be discussed in the following paragraphs). Accordingly, we suggest that the positive effects from PC dimensions to mental health complaints were potentially diluted by the effects of the remaining rival predictors included in our research model (Swann, Chang-Schneider, & Larsen McClarty, 2007).

Furthermore, in line with the non-significant cross-lagged effect from job insecurity to perceived control, and from perceived control to life satisfaction/mental health complaints, our results did not support the hypothesized indirect effects outlined in H_{21a} and H_{23a}. The direct cross-lagged effect from job insecurity to life satisfaction was also non-significant (refuting H_{22a}), a finding that we explain in accordance with the previously elaborated non-significant effects on this outcomes variable. However, the direct cross-lagged effect from job insecurity to mental health complaints was significant and positive, providing support for H_{23a}. Accordingly, our results demonstrate that employees who felt more threatened about losing their job had more impaired mental health over 1 year. We also found a positive and comparably strong reversed effect: employees' with poorer mental health were more concerned about losing their job across a 1-year time lag. Summarized, these reciprocal effects demonstrate a loss cycle suggested by COR theory (Hobfoll, 2011) in which job insecurity leads to poorer mental health and poorer mental health then bolsters further perceptions of job insecurity (De Witte *et al.*, 2016). Following this theoretical framework, we assume that job insecurity consumed employees' energy as their attempts to cope with this work stressor were likely not as successful as one would hope for (note that job insecure situation are highly uncertain and unpredictable). Being exposed to such unfavorable circumstances over a longer time period resulted with deteriorated mental health. This process then continued to increased job insecurity as employees with poorer mental health indeed had less resources to deal with threatened job situation and as such, felt more vulnerable to

potential job loss. The suggested lost cycle has already been empirically demonstrated in a study examining cross-lagged effects between job insecurity and exhaustion (De Cuyper *et al*., 2012a). However, we should note that current job insecurity literature more strongly advocates in favor of the normal causation (indicating that job insecurity leads to impaired mental health), whereas the evidence for the reciprocal causation (indicating that impaired mental health also leads to higher job insecurity) is limited (cf. De Witte *et al*., 2016).

Finally, our results did not provide support for the hypothesized mediated moderation effects (refuting $H_{25a,b,c,d}$ and $H_{27a,b,c,d}$): neither did PC dimensions attenuate the negative effects from job insecurity to perceived control, nor did perceived control had a significant effect on life satisfaction and mental health complaints, as previously explained. In addition, as we hypothesized partial mediation of moderating effects via perceived control, we expected that PC dimensions also moderate the direct effects from job insecurity to employees' well-being. Our results generally did not provide support for these assumptions leading us to reject $H_{26a,b,c,d}$ and $H_{28a,b,c,d}$.[13] We suggest that, in line with previous explanation, life satisfaction might be particularly robust to work-related interaction variables that usually have smaller effects sizes (in comparison to main effects). Another reason is, we believe, accountable for the absence of significant interaction effects on mental health complaints. This reason concerns the potentially inadequate time lag used to examine the longitudinal moderating effects of PC dimensions. As, to the best of our knowledge, this PhD represent a first empirical investigation of the longitudinal moderating effects of work environmental resources on the effects from job insecurity to mental health, we can only speculate about the optimal time lag. However, departing from the available theoretical arguments we advocate that the time lag of 1 year might have been too long to reveal the buffering potential of PC dimensions. In particular, Karasek and Theorell (1990) suggested that the longer exposure to the high strain job leads to more detrimental strain effects. As such, long-term exposure to job insecurity may have resulted with consequences that were much harder to attenuate as would be short-term detrimental effects. In other words, during a time period of 1 year employees' resources may have been too depleted by job insecurity so that any form of coping might have been in vain.

[13]Although, we did find a preliminary evidence that role harmony and leader support can function as a moderator of the negative cross-lagged effect from job insecurity to mental health complaints when tested separately. Contrary to hypothesized, this PC dimensions amplified this effect indicating that job insecurity more severely affected mental health of those employees' who had more positive perceptions of their work role and leader. This finding indicates that job insecurity might be more detrimental for those employees who perceive that they have more to lose (i.e., not just a job, but also a good job with clearly structured assignments, non-conflicting expectations and supportive leader). However, when included in the final model and tested simultaneously with other significant moderators, role harmony and leader support no longer had a unique moderating effect.

In all, our results did not support an assumption that PC dimensions buffer the longitudinal negative effects of job insecurity on employees' general well-being, neither directly, nor indirectly via perceived control (opposing the idea of mediated moderation). Given that existing (cross-sectional) studies do demonstrate buffering potential of work environmental resources (e.g., Schreurs *et al.*, 2010), we suggest that shorter time lags than the ones used in this PhD might be more appropriate for future longitudinal studies. However, our results do add to the abundant studies on the severity of job insecurity demonstrating that this work stressor has a long-term negative effect on employees' mental health which then further leads to increased job insecurity (corroborating an idea of loss cycle).

Objective 4: PC dimensions as moderators of the effects from perceived internal/external employability to employees' well-being and the mediating role of perceived control

The fourth research objective mirrors the third one in that it also addresses mediated moderation of the PC dimensions via perceived control. However, based on the COR theory, each PC dimension is now assumed to moderate the positive effects from perceived internal/external employability to employees' general well-being, and perceived control is assumed to (partially) mediate these moderating effects. In line with these assumptions, we tested two sets of hypotheses that are necessary to demonstrate mediated moderation (cf. Fairchild & MacKinnon, 2009). Specifically, we tested whether (i) the PC dimensions moderate the positive effects from perceived internal/external employability to perceived control and whether (ii) perceived control has a positive cross-lagged effect on life satisfaction and a negative cross-lagged effect on mental health complaints. In addition, accounting for the premises of COR theory and existing empirical findings, we hypothesized that both perceived internal and perceived external employability have positive cross-lagged effects on employees' well-being that is (partially) mediated by perceived control. In the paragraphs that follow we discuss: (i) the effects from antecedents to a mediator variable (i.e., perceived internal/external employability → perceived control; PC dimensions × perceived internal/external employability → perceived control); (ii) the partial mediation effects of main (e.g., perceived internal/external employability → perceived control → life satisfaction) and moderating effects (e.g., job challenge × perceived internal/external employability → perceived control → life satisfaction). Note that the effects from a mediator to outcome variables (i.e., perceived control → life satisfaction/mental health complaints) have already been discussed in relation to the third research objective.

The effects from perceived internal/external employability to perceived control

In line with H_{12b}, we found a positive cross-lagged effect from perceived internal employability to perceived control. In contrast to H_{12b}, however, we found a negative cross-lagged effect from perceived external employability to perceived control. These hypotheses were grounded on the assumption of COR theory (Hobfoll *et al.*, 2018) stating that people who have more resources (i.e., perceived internal/external employability; cf. Kirves *et al.*, 2014b) are more capable of gaining new resources (i.e., perceived control; cf. Vander Elst *et al.*, 2014b). Accordingly, we suggested that a strong belief in one's future job prospects on the internal and external labor market enhances a feeling that one is in control over his/her current work situation.

Consistent with this assumption, our results corroborated an intuitively appealing scenario according to which the conviction that one could easily find a new job within his/her organization functions as a strong signal that one can change his/her current work situation in a desired direction, if considered necessary (caution is warranted, though, as this effect was found only after a first 6-month time period). As such, our finding coincides with the employability literature that frames perceived employability as a powerful source of employees' control perceptions (De Cuyper *et al.*, 2011b). However, it also adds to this literature as the existing research has thus far mainly focused on perceived external employability (Philippaers, 2017), whereas this PhD simultaneously accounts for both perceived internal and external employability. This brings us to the following, less logical results of our analyses – the negative cross-lagged effects from perceived external employability to perceived control (that were stable across time) and the negative cross-lagged effect from perceived control to perceived external employability (that was not stable across time). The theoretical arguments and existing studies (Philippaers, 2017) advocate that these two variables relate positively: a perception that one is easily employable at some other organization implies that one can easily control his/her current work situation (e.g., by changing his/her employer). However, after closer examination of our correlation matrix, we suggest that these counter-intuitive findings might be a result of statistical suppression as the across time bivariate correlations between perceived external employability and perceived control (that match the corresponding cross-lagged effects) were either small and positive, or non-significant.

The moderating effects of PC dimensions on the effects from perceived internal/external employability to perceived control

Furthermore, our results provided partial support for the hypothesized moderating effects of the PC dimensions on the cross-lagged effects from perceived internal/external employability to perceived control. First, we found that two PC dimensions – role harmony and leader support, and co-worker cooperation – amplified the positive cross-lagged effect from perceived internal employability to perceived control, as suggested by $H_{14b,c,d}$ (although, note that the cross-lagged moderating effects were not stable across time). In contrast, the amplifying potential of job challenge was not supported by our results (refuting H_{14a}). Second, none of the PC dimensions moderated the cross-lagged effects from perceived external employability to perceived control (refuting $H_{15a,b,c,d}$). This set of hypotheses was developed along the insights from COR theory which acknowledges that organizations have the power to create resource-rich environments which enable employees to more easily foster, protect and enhance their resource reservoirs (Hobfoll, 2011). Accordingly, we suggested that the process of resource acquisition (i.e., the positive paths from perceived internal/external employability to perceived control) is facilitated (i.e., amplified) in environments that are enriched by high levels of challenging jobs, harmonious work roles, supportive leaders and cooperative co-workers.

In line with these assumptions and as evidenced in Figure 11, the positive cross-lagged effect from perceived internal employability to perceived control was stronger among employees who perceived a high (versus low) level of role harmony and leader support in their work environment. Along the same lines, Figure 12 demonstrates that perceived internal employability related more strongly to subsequent perceived control among employees who perceived a high (versus low) level of co-worker cooperation. Although these findings corroborate the predicted amplifying potential of the analyzed PC dimension, we no longer feel confident to interpret them in line with the theoretical assumptions outlined in the introductory part (p. 43). More specifically, we suggested that PC dimensions facilitate the expression of employees' human capital (e.g., knowledge, skills and abilities) reflected in perceived internal/external employability, which in turn, enables them to more easily establish control over their work situation. However, the following pattern of observed results discourages this line of thinking. First, we failed to demonstrate positive effects from occupational self-efficacy to perceived internal and perceived external employability, a finding that severely challenges the assumption that perceived internal/external employability of our participants was contingent on their human capital. Second, we found evidence that PC dimensions moderate effects from perceived internal, but not from perceived external

employability to perceived control. And third, we failed to demonstrate the moderating effect of job challenge on the effect from perceived internal employability to perceived control. If facilitated expression of human capital was the main mechanism responsible for the amplifying potential of the PC dimensions, we would expect to find it in relation to perceived external employability, as well as in relation to job challenge. Therefore, we suggest an alternative explanation that is unique for the internal labor market and the two PC dimensions that did demonstrate a moderating effect. In particular, we advocate that employees' perceptions of their chances for a new job in the internal labor market were to a substantial extent contingent on the social capital one has established at his/her workplace. For that reason, we suggest that role harmony and leader support, and co-worker cooperation might have been crucial for employable individuals to establish control over their current work situation: both PC dimensions reflect positive interpersonal relationships at one's work place.

Mediation via perceived control accounting for the effects from perceived internal/external employability and their interactions with the PC dimensions to employees' general well-being

Although the focus of the fourth research objective was mediated moderation, we first discuss the results of the hypothesized mediation of the main effects of perceived internal and perceived external employability. Contrary to $H_{21b,c}$, our results did not provide support for the assumption that perceived control mediates the effects from perceived internal/external employability to life satisfaction. In addition, we did not confirm $H_{22b,c}$ according to which perceived internal and perceived external employability have direct positive effects on this outcome. In explaining these non-significant effects, we draw on our previous explanation outlining life satisfaction as an outcome that was plausibly more saturated by the assessments of non-work-related life domains, and as a result, non-accountable by the antecedents in this PhD (that are all strictly related to the work domain). As with life satisfaction, we did not confirm assumptions that perceived control mediates the negative effects from perceived internal/external employability to mental health complaints (refuting $H_{23b,c}$). However, we did find a direct negative cross-lagged effect from perceived internal employability to mental health complaints (supporting H_{24b}), whereas perceived external employability did not have a significant direct effect on this outcome (refuting H_{24c}). The finding that perceived internal, but not external employability had a long-term effect on employees' mental health complaints indicates that employees in this PhD more strongly relied on the internal, rather than on the external labor market in planning their career paths. This mindset is central to hierarchical career models which emphasize the importance of long-term employees-employer relationships (Zaleska & de Menezes, 2007). As the beneficial effect of perceived internal

employability on employees' mental health was not explained by perceived control over the current work situation, we suggest that other mechanisms, that were not included in the present study might account for this relationship. For example, perceived internal employability may lead to increased affective organizational commitment, which, in turn leads to increased well-being (Meyer & Maltin, 2010).

As a final note, we discuss the results of the hypothesized mediated moderation effects that were of central research interest in this PhD. In particular, we did not find support for the idea that perceived control accounts for the moderating effects of the PC dimensions on the effects from perceived internal/external employability to employees' general well-being (refuting $H_{29a,b,c,d}$, $H_{31a,b,c,d}$, $H_{33a,b,c,d}$ and $H_{35a,b,c,d}$). In addition, we did not confirm the assumption that the PC dimensions moderate the direct effect from perceived internal/external employability to life satisfaction and mental health complaints, as indicated by hypothesized partial mediation[14]. Accordingly, we reject $H_{30a,b,c,d}$, $H_{32a,b,c,d}$, $H_{34a,b,c,d}$ and $H_{36a,b,c,d}$. As the present PhD represents the first empirical test of these hypotheses, we can only speculate about the reasons for the observed non-significant effects. However, we believe that a plausible explanation can be derived from the specificity matching principle, which advocates that predictors should be matched with the outcomes at the specificity level in order to increase their predictive validity (Swann *et al.*, 2007). In line with this principle, we posit that each predictor variable that represented interaction between perceived internal/external employability and PC dimensions was not adequately matched in specificity level with life satisfaction and mental health complaints: on the one hand, each predictor variable was highly specific as it represented an interaction between employees' personal and environmental work-related resources; on the other hand, each outcome variable was relatively general, i.e., it represented employees' general well-being. Accounting for this mismatch at the specificity level and the fact that interaction variables usually have small effect sizes, we suggest that narrowing the outcome variable to employees' work-related well-being (e.g., job satisfaction) might result with a more promising findings.

In all, the results of this PhD did not support the idea that work environmental resources facilitate the gain cycle from perceived internal/external employability to employees' general well-being – neither directly, nor indirectly via perceived control

[14] Note however that we did find preliminary evidence that two PC dimensions – role harmony and leader support, and co-worker cooperation - moderate the direct cross-lagged effects from perceived internal employability to mental health complaints (when tested separately). As hypothesized, both PC dimensions amplified the negative cross-lagged effect from perceived internal employability to this outcome. However, when included in the final model and tested simultaneously with other significant moderators, neither role harmony and leader support, nor co-worker cooperation had a unique moderating effect.

(opposing the idea of mediated moderation). However, we did find some evidence that PC dimensions which reflect positive interpersonal relationships at one's workplace enable employees with high internal perceived employability to more easily establish control over their work situation. Moreover, we found that perceived internal employability has a long-term positive effect on employees' mental health complaints. Summarized, these findings indicate that perceived internal employability represents a valuable personal resource that has often been overlooked in the employability literature (especially in comparison to perceived external employability).

Methodological considerations

Notwithstanding the insights obtained in this PhD, we acknowledge that several methodological limitations need to be to be taken into consideration when interpreting the results. Although the main points have already been indicated in the overview of research findings, in the following paragraphs we summarize and more thoroughly elaborate each of them.

Sample. The sample in this study was not representative of the Croatian workforce which may have induced bias in results and limited their generalizability in several ways. First, the sample was entirely composed of white-collar, highly skilled employees, which may result in the underestimation of particular effects due to restriction of range in the predictor and/or criterion variables (e.g., the effects from PC dimensions to occupational self-efficacy due to the negatively asymmetric distribution of self-efficacy scores). Second, a high proportion of participants in our sample were permanently (versus temporary) employed. Several studies have demonstrated that the employment contract type moderates the effects of job insecurity and perceived external employability on employees' well-being. In particular, permanent (versus temporary) employees are more negatively affected by job insecurity because for this group of employees job insecurity represents a more severe breach of the psychological contract (De Cuyper & De Witte, 2006; Kirves *et al.*, 2011). In contrast, temporary (versus permanent) employees are more positively affected by perceived external employability as for this group of employees being employable across the organizational boundaries represents a way to preserve employment continuity (De Cuyper *et al*., 2009b; Kinnunen, Mäkikangas, Mauno, Siponen, & Nätti, 2011). Accounting for these theoretical and empirical arguments, we might assume that the effects of job insecurity and perceived internal employability on employees' general well-being might have been stronger in this PhD due to the sample composition: both concepts are more important for permanent (versus

temporary) employees as both encompass an idea of long-term employment in one's current organization. In line with this logic, the effects of perceived external employability on well-being might have been underestimated[15]. Third, all employees in this PhD were employed in the private sector. As employees in Croatian private (versus public) organizations have higher levels of both job insecurity and perceived external employability (Tomas, Maslić Seršić, & De Witte, 2015), we assume that the effects that include these two variables (either as antecedents, or as outcomes) could have been stronger if we collected data in both sectors (due to the increased variability). Fourth, our data was collected only within one country which pinpoints the need for cross-cultural replication. In this regard, changes that have affected the global labor market in the last few decades (e.g., higher percentage of temporary and flexible working arrangements, downsizing, and mergers) are even more pronounced in former socialist countries, such as Croatia (Dautović & Galić, 2016; Maslić Seršić & Trkulja, 2009). As a result, the current Croatian labor market is characterized by a high unemployment rate (i.e., 11.2% in 2017; Eurostat, 2017) and a low number of available job positions (cf., Croatian Bureau of Statistics, 2018). And fifth, we need to take into account that the voluntary participation in our study might have induced sampling bias at the level of both the organization and its participants. More specifically, because an incentive to participate in the study was provided via a report of the study results, the organizations that agreed to participate might have been those who are generally more motivated to improve the psychosocial work environment of employees. Furthermore, the employees who agreed to participate in this type of research might also represent those more willing to express their opinions about their work environment (e.g., those with more positive attitudes). Finally, our sample dropout analyses revealed that longitudinal attrition was lower among employees with more positive perceptions of the work environment and lower levels of job insecurity. Although it was difficult to influence the bias at the level of the organization, we attempted to influence employee bias by intensively collaborating with the HR department in order to motivate each employee to participate at each measurement occasion. As a result, our response rates ranged from 42.5% at T3 to 66.4% at T1, a percentage that is considerably higher than the average response rate of 36% in organizational studies (cf. Baruch & Holtom, 2008). Additionally, instead of using listwise deletion, we treated missing data with a FIML procedure that uses all available data to produce less biased parameters and accurate standard errors (Newman, 2003). Despite these methodological and statistical remedies, we cannot exclude the possibility that the mean scores of the PC dimensions obtained in our study might

[15] Note however that we did include employment contract as a control variable in our analyses.

have been overestimated and the corresponding effects underestimated due to lower variability.

Self-reports. All variables in this PhD were measured by self-reports. We believe this approach has both advantages and disadvantages. The first advantage stems from the nature of the study concepts which are all subjective and thus may not be validly assessed by other raters. Additionally, individuals' interpretations of their environments and capabilities should more strongly influence individual outcomes, as compared to more objective variables (James *et al.*, 1978). However, there are also disadvantages related to this method. First, self-reports may increase the risk of a common method bias which implies the risk of inflated relationships between the study variables (Podsakoff, Mackenzie, Lee, & Podsakoff, 2003). In order to a priori diminish common method bias, we followed the instructions proposed by Podsakoff *et al.* (2003). In particular, we stressed confidentiality and the fact that there were no right or wrong answers. Additionally, items were preliminary independently reviewed for any potential ambiguity by the study authors. Then, we invested considerable effort to emphasize to employees that their opinion is highly valued because the data will be used for the improvement of their psychosocial climate at work. These procedures were facilitated by intense collaboration with HR managers. Finally, we increased the proximal separation of study variables in the questionnaire (e.g., measures of PC dimensions, occupational self-efficacy and job insecurity were separated by measures of other constructs) and labeled all scale points rather than just the end points. The second disadvantage of self-reports is that they increase the risk of socially desirable responses. As our data was not collected independently of organizations, we have invested considerable effort in order to a priori diminish this risk. As previously stated, we emphasized the anonymity of the responses, not only at the beginning of the survey but also in the advanced notices. Additionally, we ensured participants' anonymity by instructing them to use anonymous codes instead of their names or any other information that could reveal their identity (as we needed to link the surveys across the measurement occasions).

Time lags. As already suggested on several places throughout the discussion of results, the time lags of 6 months and 1 year might not have been most appropriate with regards to some effects (e.g., effects from PC dimensions to occupational self-efficacy). COR theory (nor any other theoretical framework) does not operationalize the time that is needed for certain processes to unwind (e.g., process of resource loss when one perceives a threat to his/her job). Therefore, where possible, we accounted for the existing empirical evidence demonstrating that particular time lags are appropriate to detect the effect of interest. One example is the study by Vander Elst *et al.* (2014b) who demonstrated that job insecurity

deteriorates employees' perception of control after a 6-month time lag. However, this was not possible with regard to more innovative hypotheses in this PhD where we could not rely on existing (longitudinal) studies (e.g., the longitudinal moderating effects). Therefore, we believe that future research may benefit from using different time intervals than ours (e.g., 2 years).

Measures. In this study we used internationally validated measures. The only exception represents the measure of psychological climate (PCQ) that has been adapted for the purpose of this study and additionally validated in a pilot study. Although the results of the pilot study supported the hypothesized 4-factor structure of the PC model, the results of our main study did not support the discriminant validity of two PC dimensions – role harmony and leader support. As a result, the PCQ used in our study encompassed three (instead of four) PC factors. Although our measure did include subdimensions of each PC factor corresponding to all four situational referents (i.e., jobs, roles, leaders and coworkers), the results of our study are limited in terms of the understanding of the separate effects of the leader and role dimensions. The plausible reason for the high overlap of the role and leader dimensions might be derived from role theory, which defines roles as a pattern of behaviors that employees perceive as expected from them (cf. Tubre & Collins, 2000). Accordingly, employees might perceive a link between their roles and leaders, to the extent in which leaders are perceived to be the source of these expectations. For example, a perception of a clearly defined role might be strongly related to the perception of a transparent leader who clearly defines work goals and performance expectations. This argument is supported by a study by House and Rizzo (1972), who reported moderate to strong correlations between the role (i.e., ambiguity and conflict) and leader (i.e., supportive leadership and leader structure and standard setting) dimensions.

Avenues for future studies

In the paragraphs that follow we summarize the avenues for future research that are derived from the methodological considerations addressed above. In addition, we extend this list by suggestions that have been inspired by some of the findings in this PhD.

First, we believe that future studies might benefit from taking a broader or alternative approach in conceptualizing (1) job insecurity, (2) psychological climate and (3) employees' well-being. Specifically, in this PhD we focused on quantitative job insecurity that refers to the perceived threat to the continuity of the job itself. However, research demonstrates that the perceived threat to the continuity of valued job features (such as flexible working hour, pay

and autonomy), known as qualitative job insecurity (De Witte, 2005; Maslić Seršić & Trkulja, 2009), also represents an important issue for many employees. Although not burdening in a sense that it poses existential worries (as quantitative job insecurity), the existing research demonstrates that qualitative job insecurity is a relevant work stressor that impairs individual and organizational well-being (e.g., Vander Elst *et al*., 2014a). As many of the hypotheses in the present PhD have not yet been (longitudinally) examined in previous research, we departed from the quantitative conceptualization that still dominates the job insecurity literature. However, we believe that some of the tested effect might have a strong (if not stronger) resonance in relation to qualitative job insecurity. For example, we failed to demonstrate that occupational self-efficacy reduces one's worries about the continuance of the job itself. However, high confidence in one's abilities to successfully master various job-related challenges might prove beneficial in decreasing one's worries that he/she will lose valued aspects of his/her job (e.g., opportunities to lead interesting and challenging projects). Next, work environmental resources in this PhD were conceptualized as an all-encompassing and theoretically grounded model of PC (James *et al*., 2008). Notwithstanding the benefits of this model (see p. 9), we suggest that future studies might benefit from two alternative ways of framing work environmental resources. The first one refers to higher-level conceptualizations of work environment. Although our choice of an individual-level conceptualization has a strong theoretical underpinning (cf., James *et al*., 1978), we believe that a group-level conceptualization (e.g., team-level co-worker cooperation) might provide additional interesting insights into the role of the work environment in job insecurity and employability perceptions. The second one refers to the more specific conceptualizations of the work environment. As such, each PC dimension (except co-worker cooperation) represents a broad concept that encompasses several work environmental variables. Despite the benefits of such conceptualizations (cf. Fugate & Kinicki, 2008), we suggest that work environmental resources that are narrower in focus might potentially better match particular outcomes/effects. For example, as pointed out earlier in this discussion, transparency of organizational communication might be more efficient in attenuating the negative effects of job insecurity on perceived control. Finally, in this PhD we chose to focus on employees' general well-being – i.e., life satisfaction and mental health complaints – as these indicators have implications over and beyond one's working life. However, indicators of employees' work-related well-being (e.g., job satisfaction, work engagement) are anchored to the work context and as such, more closely relate to job insecurity and perceived internal/external employability. Therefore, future studies might consider examining this alternative conceptualization of employees' well-being.

The second and third set of suggestions summarizes previously elaborated issues related to sample and time lags. As such, future studies using more diverse samples in terms of occupational group (i.e., white-collar *and* blue-collar employees) and sector (i.e., private *and* public sector) might overcome issues related to restriction of range in the predictor and/or criterion variables and increase the generalizability of findings. In addition, we believe that different time lags than the one used in this PhD might yield more promising results with regard to some effects (e.g., moderating effects of a PC dimension on the effects form job insecurity to perceived control).

The final set of suggestions has been inspired by the following findings. First, we found that cooperation among co-workers leads to decreased job insecurity across a 1-year time lag. However, this effects was not explained by employee's occupational self-efficacy, as hypothesized. As we believe that this finding might prove valuable in organization practice, we advocate future studies to unravel the mechanisms through which co-worker cooperation operates. Some of our suggestions include decreased competition and workplace bullying. Second, we did not establish a beneficial effect from perceived external employability to employees' well-being via perceived control over one's current work situation. Therefore, we suggest that a broader conceptualization of control, such as perceived control over the whole career, might yield more promising results, as frequently advocated in the employability literature (e.g., De Cuyper *et al*., 2011b). Finally, in addition to alternative mediating variables, examining boundary conditions of particular effects might represent an interesting avenue for future research. One of the potentially promising moderators that were not included in this PhD, but that might improve our understanding of the non-significant effects from occupational self-efficacy to job insecurity and perceived internal employability, refers to situational conditions such as the organizational performance evaluation system (e.g., whether it exists at all and how transparently criteria are communicated to employees).

Practical implications

Based on the findings of this PhD, we see the following implications for practice. First, our results demonstrated that investing in cooperative relationships at one's workplace represents a promising route to decrease employees' perceptions of job insecurity. We believe this is an encouraging finding as job insecurity often arises from external factors that are difficult to influence (e.g., company performance; Debus, Konig, & Kleinmann, 2014). In contrast, cooperation among coworkers is a susceptible work environmental resource that can be nurtured in many ways. For example, HR managers may invest in promotion of mutual

organizational goals and values, reinforce and reward helping behavior and facilitate face-to-face interactions. As such, they may prevent job insecurity perceptions to develop in the first place.

Second, our results demonstrated that cooperation among co-workers is beneficial in yet another way: it amplifies the positive effect from perceived internal employability to perceived control over the current work situation. Although we did not find evidence that perceived control increases employees' life satisfaction and mental health across a 6-month time lag, existing research does support the notion that this is a resource worthwhile investing in. For example, studies showed that perceived control promotes affective organizational commitment (Vander Elst *et al*., 2014a) and reduces emotional exhaustion (Vander Elst *et al*., 2014b). Accordingly, enabling employees with higher internal employability to more easily establish control over their work situation indirectly implies investing in commitment and work-related well-being of those employees whose profiles fit the organizational (internal) labor market.

Third, our results revealed that the positive path from perceived internal employability to perceived control may also be nurtured by investments in positive leader behaviors. As such, leaders might be instructed and trained to include internally employable individuals in decision making processes and provide them clear instructions and guidance. Finally, although not in the focus of this PhD, we found that perceived control may also be directly increased by providing employees more autonomy over the content, time frame and methods to use in carrying out their work.

Conclusion

The present PhD aimed to address the currently limited and fragmented knowledge on the work environmental antecedents and moderators in the job insecurity and perceived employability literature. In doing so, we probed the direct effects of the PC dimensions on job insecurity and perceived internal/external employability accounting for the potential underlying mechanism of these effects (i.e., occupational self-efficacy). The results demonstrated that cooperation among co-workers had a negative direct cross-lagged effect on job insecurity across a 1-year time lag. In contrast, employees' perceptions of their job tasks, work roles and leader did not affect job insecurity and perceived internal/external employability (neither directly, nor indirectly via occupational self-efficacy). Furthermore, we probed the moderating effects of the PC dimensions on the effects from job insecurity and perceived internal/external employability to employee's general well-being, again accounting for the potential mechanism of these effects (i.e., perceived control). Our results did not confirm the assumption that a resourceful work environment can buffer the negative longitudinal effects of job insecurity, nor amplify the positive longitudinal effects of perceived internal and perceived external employability (neither directly, nor indirectly via perceived control). However, we did find partial support for the hypothesized moderating effects of PC dimensions on the effects from perceived internal employability to perceived control. In particular, the positive cross-lagged effect from perceived internal employability to perceived control over the current work situation was stronger among employees who perceived a higher (versus lower) level of role harmony and leader support, and co-worker cooperation. Summarizing these findings, we conclude that work environmental variables conceptualized as PC dimensions have limited utility in managing perceptions of job insecurity and internal/external employability. However, not all is lost, as our findings do reveal that cooperation among co-workers can decrease job insecurity, as well as enable internally employable individuals to more easily establish control over their work situation. Additionally, they demonstrate that the later can also be accomplished by leaders who provide work-related support to their subordinates. In all, our results demonstrate that investing in positive (horizontal and vertical) relationships at one's workplace has the most promising potential in managing job insecurity and perceived (internal) employability.

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APPENDIX

Preliminary validation of the PCQ: method and results of the pilot study

Selection of psychological climate subdimensions and items. We selected subdimensions and items in several iterations. Each began with an independent selection procedure followed by a discussion until we reached an agreement. From the initial list of 17 subdimensions (cf. James & James, 1989) we selected 11 that are most frequently included in current versions of PCQs and that reflect the core psychological meaning of the four PC factors (cf. Baltes *et al.*, 2002; Baltes *et al.*, 2009; Gagnon *et al.*, 2009). These subdimensions were: job challenge and variety, job autonomy, job importance, role clarity, role congruence, optimal workload, leader goal emphasis and work facilitation, participative decision making, leader trust and support, co-worker cooperation and co-worker friendliness and warmth. Each subdimension was measured with 7 to 10 items. Items were selected from the item pool that consisted of the items from the James and James' (1989) PCQ, other available measures of conceptually corresponding constructs (i.e., Jackson *et al.*, 1993) and by items that we additionally generated based on the definitions corresponding to each subdimension (see Jones & James, 1979). Some items from the James and James' (1989) PCQ were slightly adapted where needed to fit the present organizational context (e.g., the term 'my supervising petty officer' was revised into 'my immediate supervisor'). In result, the preliminary version of the PCQ consisted of 11 subdimensions measured by 85 items. Answers were indicated on a scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*).

Participants and procedure. Data collection took place in May and June 2015. The questionnaire was administered to a sample of 531 employees who were personally recruited by psychology students and PhD candidate. Approximately two thirds of the participants were female (63.3%) and had minimally obtained bachelor's, master's or an equivalent diploma (63.9%). Mean age was 40.72 years (SD = 11.33) and mean organizational tenure was 12.04 years (SD = 10.41). Most of the participants were employed on a permanent contract (81.9%), while approximately half of them (49.3%) worked in a private sector.

Data analyses and results. The analyses were conducted in two steps. The first step included the psychometric evaluation of the items. In particular, we conducted CFA with maximum likelihood estimator and calculated Cronbach's α coefficients for each subdimension separately. Four to five items per subdimension were retained based on the combination of content and psychometric (i.e., highest factor loadings and reliability estimates) criteria. In the

second step we further reduced the number of subdimensions. In particular, we excluded two subdimensions that were shown as empirically redundant, i.e., highly overlapping with other subdimensions: leader trust and support that correlated highly with the remaining leader subdimensions (i.e., .83 with leader goal emphasis and work facilitation and .87 with participative decision making) and co-worker friendliness and warmth that correlated highly with co-workers' cooperation (i.e., r = .99). Additionally, we excluded the subdimension optimal workload because it loaded poorly onto the corresponding second-order factor role harmony (i.e., higher order factor loading was .36).

The resulting 4-second-order factor model comprising of 8 first-order factors fitted the data reasonably well ($\chi^2(686) = 1887.62$, $p < .001$, CFI = .89, RMSEA = .06, SRMR = .08). All indicators loaded significantly and in the expected direction on the corresponding first-order factors (standardized factor loadings ranged from .47 to .89), all first-order factors loaded highly on the corresponding second-order factor (standardized factor loadings ranged from .68 to .91) and factor correlations ranged from .28 to .80. The model included three correlations between the errors of indicators which loaded on the same factor.

CURRICULUM VITAE

Jasmina Tomas has finished her primary and secondary education in Karlovac (Croatia). She received BA (2009) and MA (2012) degrees in Psychology from the Faculty of Humanities and Social Sciences at the University of Zagreb. She was awarded the Rector's Award for student research paper (2011). She is currently pursuing a doctoral degree at the University of Zagreb in Croatia and KU Leuven in Belgium (Joint PhD Thesis Supervision/Cotutelle de thèse).

Starting from 2012, she has been (and still is) employed as a teaching and research assistant at the Faculty of Humanities and Social Sciences at the University of Zagreb. She is teaching courses in Research Methods (MA level), Organizational and Occupational Health Psychology (MA level) and Career Management (MA level). As a member of the Program and Organizing Committee, she helped organize one international scientific conference (Ramiro and Zoran Bujas' Days) and was involved in a project on popularization of psychology (PsihoFest).

Until now she has co-authored six articles in (English) international and national peer-reviewed journals, edited one book and presented her work at 17 international and national conferences. Her research interest focuses on the topics of job insecurity, individual employability, work-related stress and career development. She was involved in several national and international research projects, including currently ongoing ESF project.

She has completed several trainings in advanced statistical methods that include structural equation modelling and multilevel modelling. In 2013, she co-organized 23rd Psychology summer school on the topic Defining dispositional employability in Croatian Society. She is currently a member of Croatian Psychological Chamber and European Association of Work and Organizational Psychology (EAWOP).

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